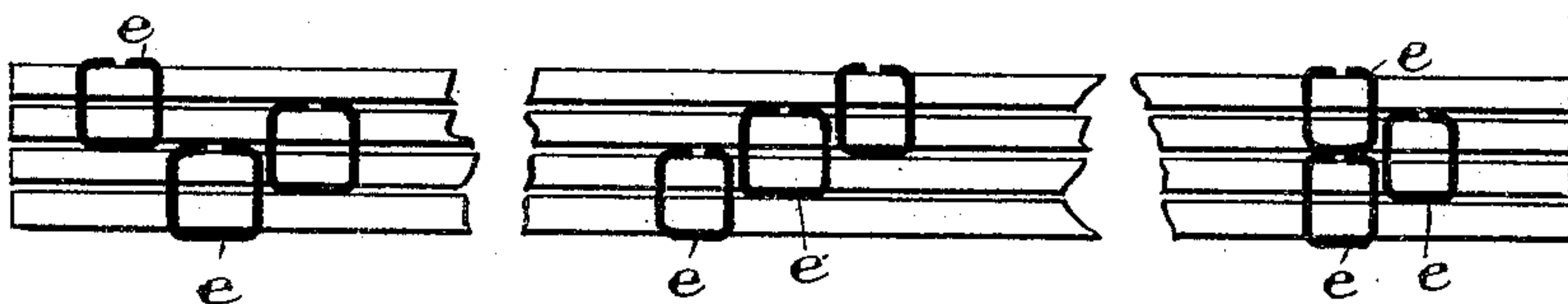
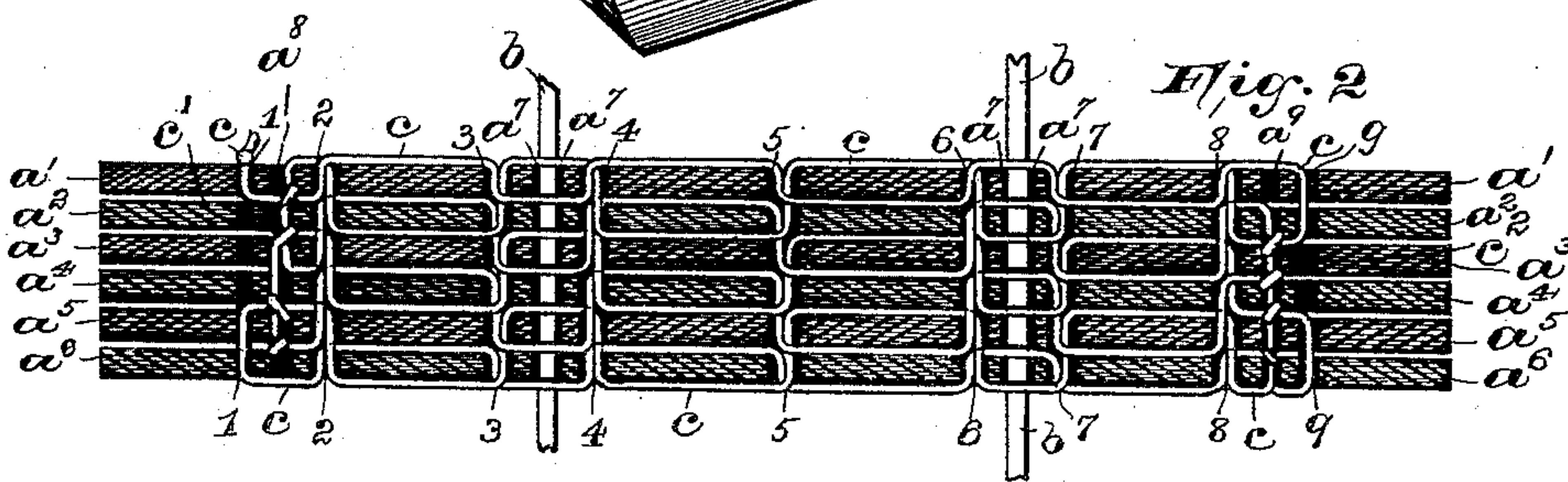
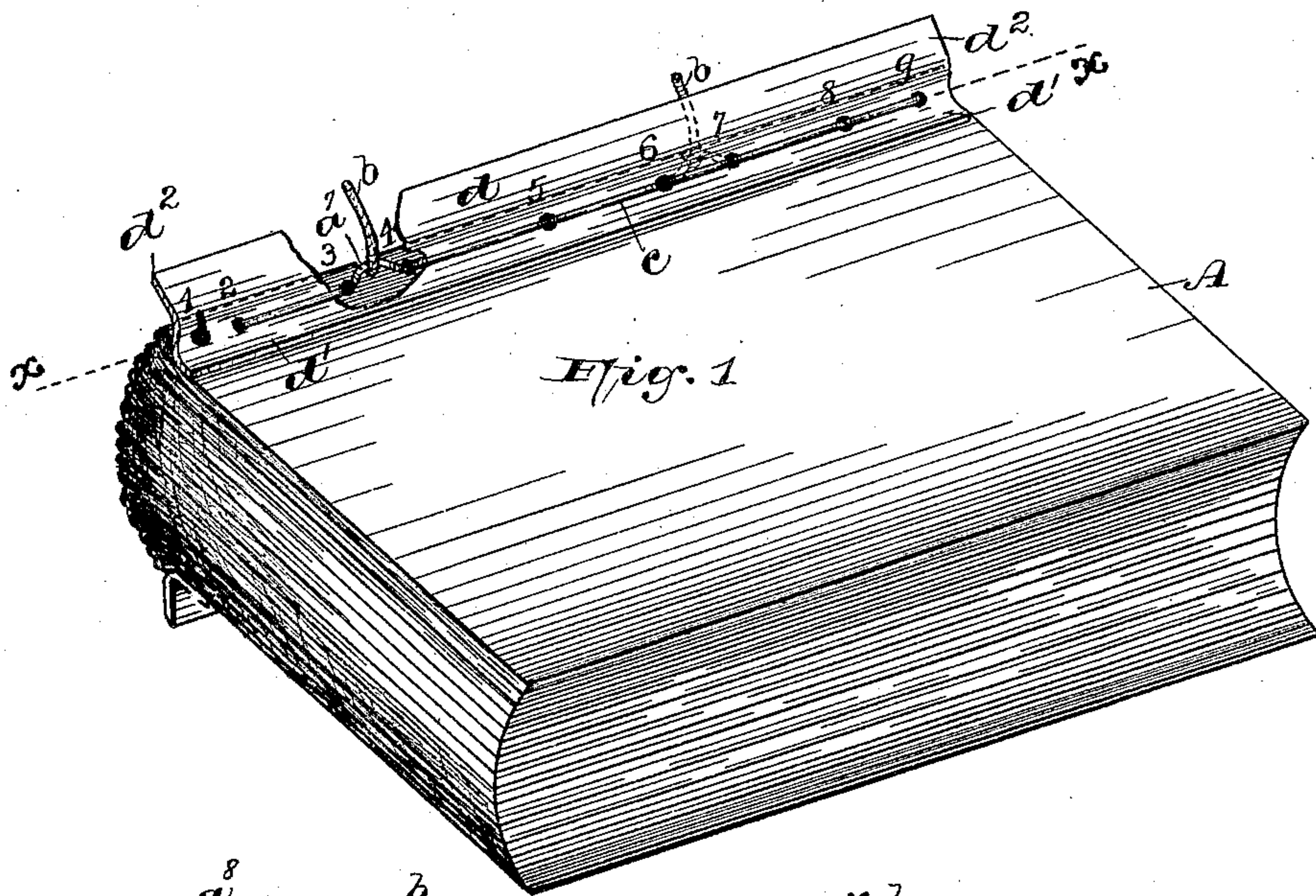


(No Model.)

W. R. CRAWFORD.
BOOK AND BINDING THEREFOR.

No. 429,889.

Patented June 10, 1890.



WITNESSES:

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BOOK AND BINDING THEREFOR.

SPECIFICATION forming part of Letters Patent No. 429,889, dated June 10, 1890.

Application filed February 17, 1890. Serial No. 340,777. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. CRAWFORD, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Books and Binding therefor; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

The present invention relates to improvements in book-binding, and has for its purpose to provide a book the signatures or single sheets of which are secured together in a much stronger manner than has been done heretofore by the ordinary whip-stitching or book-sewing.

The invention consists in an improvement in which the leaves of the outer signatures of a book are stitched together at a short distance from and in line with the back edges, with a stitch alternately arranged on opposite sides of each section.

The invention further consists in stitching or securing the first or outer signatures by means of the alternating stitch and securing a second section to the first by means of a similar stitch taken alternately through the second and first sections, then adding a third section, which is stitched to the second section in the same manner, and so on, adding section after section until the book is completed.

The invention, which is designed to be used on new books as well as on old works which are subject to considerable hard usage, as in circulating libraries, is illustrated in the accompanying sheet of drawings, in which similar reference letters and figures are employed to indicate corresponding parts in each of the several views.

In said views, Figure 1 is a perspective view of any number of sections comprising the body of a book, which are sewed or stitched together according to my invention. Fig. 2 is a vertical section taken through line x in Fig. 1, the several parts being somewhat

enlarged to illustrate the stitching more clearly. Figs. 3 and 4 are an end view and a top view, respectively, of one section provided with the alternating stitch near the back edge of the section, but also illustrating the manner of combining said stitch with an overseam-stitch. In Fig. 5 several methods of securing the sections of a book together by means of staples are shown.

Referring to said drawings, A represents the body of a book made up of any number of signatures or sections a' a^2 a^3 a^4 a^5 a^6 , &c.

The book is made up or sewed in the following manner: The single sheets, having been arranged in their proper order, are glued at their backs in the ordinary and well-known manner and provided with saw-cuts for the bands or binding-cords b , and also to receive a kettle-stitch, which is clearly illustrated in the section in Fig. 2. When the said sheets have been glued together, they are broken apart into divisions or sections and stabbed or pierced in the regular manner. When this has been done, the first section is set up in the sewing-bench, containing two or more bands or binding-cords b , in such a manner that said bands or cords fit into the saw-cuts a^7 made for that purpose. The needle, containing a thread, cord, or fine wire c , is then inserted through hole or perforation l in the first division or section a' , and the cord or thread is pulled through said hole and caused to lie between sections a' and a^2 and drawn through holes 2, 3, 4, 5, 6, 7, 8, and 9 in section a' , so that the thread or cord will be arranged in alternate spaces and on opposite sides of said section at a short distance from and in line with the back edge of the same. When hole 9 has been reached, the thread or cord is passed through the corresponding hole or perforation in section a^2 , placed in the sewing-bench upon section a' , and the same course is pursued, with this distinction, that both sections a^2 and a' are sewed or stitched together by means of the alternating stitches. When the cord or thread has been passed through hole 2 in sections a^2 and a' , it is caused to lie in the saw-cut a^8 , and a kettle-stitch is made at c' , and then passed through the corresponding perforation 2 in section a^3 . Sections a^3 and a^2 are then sewed together by passing the

thread or cord through the perforations in said two sections until the saw-cut a^9 is reached, when another kettle-stitch c^2 is made, and the same procedure is then repeated in sewing section a^4 to a^3 , and in this manner section after section is sewed fast to the next preceding section until the book is completed. Thus section a^2 is attached to section a' , section a^3 to a^2 , section a^4 to a^3 , section a^5 to a^4 , section a^6 to a^5 , and so on. Thus it is evident that the thread or cord is carried from one side to the other of the sections alternately and in such a manner that the thread or cord is always on the outside of the bands b , as will be seen from Figs. 1 and 2. It will be noticed that when all sections have been sewed together the end sections and also the intermediate sections are stitched twice, and will thereby be provided with stitches which, although alternately made, form a continuous line of thread from one end to the other a short distance from and in line with the back edges of the sections. By this arrangement the first and last signatures or sections are properly re-enforced where they are subject to the greatest strains, and, moreover, the objectionable feature of the tearing out of the leaves of a book which are sewed together by the whip-stitch is avoided, as by this means of sewing a book the stitches are arranged between the different sections in the direction of its length, which makes it almost impossible to break the binding, and the leaves can only become loose by tearing them from the book with great force.

Another advantage is that when a book has been sewed or stitched in the manner just described the pages will open as freely as in ordinary whip-stitching.

If desirable, the joints d , for securing the sewed or connected sections of the book to the covers, may be stitched to the first and last sections, instead of pasting them thereto, as heretofore, thus producing a strong and durable means of attaching the body part of the book to its cover. As shown in Fig. 1, the ends d' of the joints are sewed or stitched to the sections a' and a^6 by means of the same thread or cord c with which the several sections are stitched together, and the free ends d^2 are glued to the inner side of the covers.

Instead of using the alternating stitch, as shown and described, I may employ the same stitch in connection with an overseam-stitch. (Shown in Figs. 3 and 4.) In that case the cord or thread c is drawn through hole 1 to hole 2 and to the other side of the section, and then brought around the back edge of said section, as shown at c^3 , and back through the same hole 2 to the next hole 3, where the same operation is repeated. This stitch may be used on the first and last sections or signatures only, in connection with the intermediate signatures, which are sewed together and connected with the first and last signatures in precisely the same manner as has been

stated in the above. If desirable, however, all of the sections or signatures can be provided with the overseam-stitch c^3 , as will be evident.

In Fig. 5 is shown still another modification of attaching section a^2 to a' , section a^3 to a^2 , &c., in which case I prefer to use an ordinary wire staple e , which is clinched or turned down between the sections, as shown. The improvements described in connection with Figs. 1, 2, and 3, however, is the preferred way of stitching the sections or signatures together, either by thread, cord, wire, or otherwise. In this manner books either with or without plates may be sewed or the leaves of old books which have had hard usage can be restitched with ease, and the leaves thereby prevented from being easily torn out of the book.

Instead of stitching two sections together, and then a third to the second, and a fourth to the third, &c., I can secure three or more sections together with the same stitch, and then keep adding one or more sections to those already sewed together, without thereby departing from the scope of my present invention.

Having thus described my invention, what I claim is—

1. A book having its sections or signatures sewed with stitches alternating from the outside of the section to the inner side and from the inner side to the outer side in the direction along and near the edge of the section, as set forth.

2. A book having one or more of the front signatures or sections stitched together with stitches alternating from front to back and from back to front of said signatures at a short distance from and in line with the back edge, and having one or more signatures or sections stitched thereto in the same manner, and so on, adding one or more signatures to those sewed together, whereby the entire signatures or sections form a complete body, as and for the purposes set forth.

3. A book consisting of a number of sections a' a^2 a^3 a^4 a^5 a^6 , &c., in which said section a^2 is secured or stitched to section a' , section a^3 to a^2 , section a^4 to a^3 , and so on, each section being attached to the next preceding section, whereby the complete body of the book is formed, as set forth.

4. A book having two sections stitched together with stitches alternating from front to back and from back to front of said signatures at a short distance from and in line with the back edge, adding a third section to the second with the same stitch, and a fourth to the third, and so on, and the stitches near the ends of each section being arranged in saw-cuts in the backs of the sections and secured by means of kettle-stitches, as and for the purposes set forth.

5. A book having two sections stitched together with stitches alternating from front

to back and from back to front of said signatures or sections at a short distance from and in line with the back edge, adding a third section to the section with the same stitch,
5 and a fourth to the third, and so on, and the stitches near the ends of each section being arranged in saw-cuts in the backs of the sections and secured by means of kettle-stitches, and bands *b*, also arranged in saw-

cuts in the backs of the sections, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 13th day of February, 1890.

WILLIAM R. CRAWFORD.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD.