

(No Model.)

D. M. SMYTH.
Book Sewing.

No. 238,451.

Patented March 1, 1881.

Fig. 1.

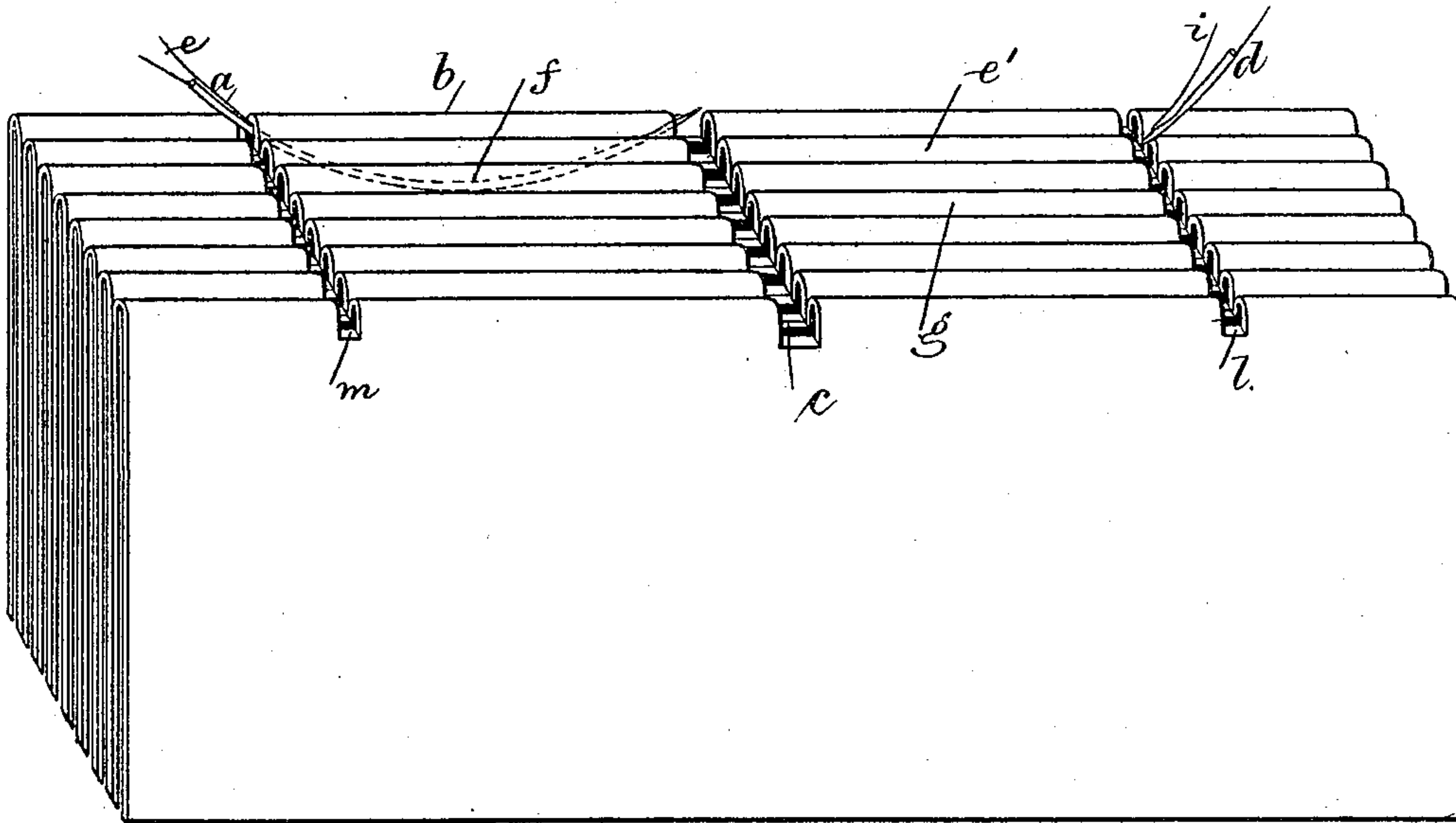
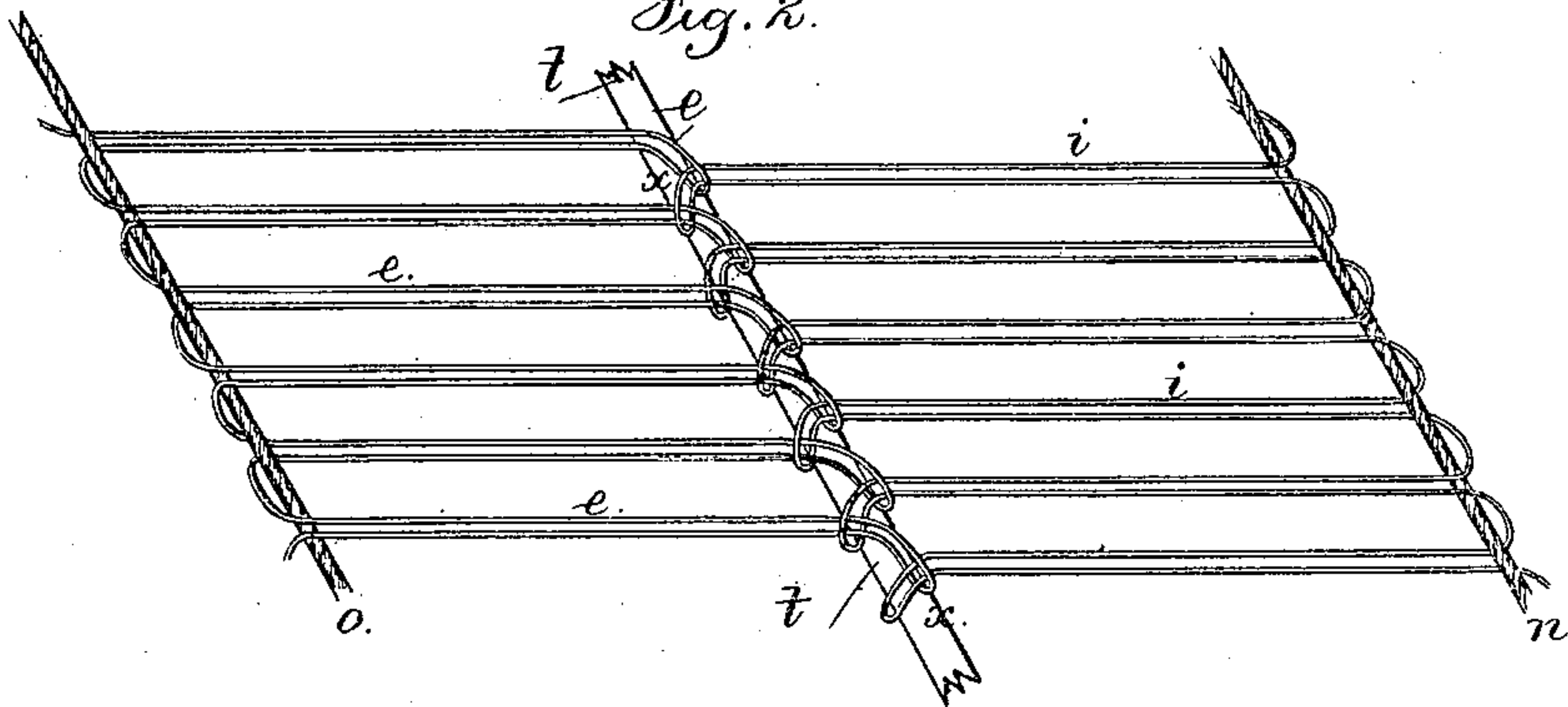


Fig. 2.



Witnesses

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DAVID M. SMYTH, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE SMYTH MANUFACTURING COMPANY, OF SAME PLACE.

BOOK-SEWING.

SPECIFICATION forming part of Letters Patent No. 238,451, dated March 1, 1881.

Application filed December 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, DAVID M. SMYTH, of Hartford, in the county of Hartford and State of Connecticut, have invented an Improvement in Book-Sewing, of which the following is a specification.

The present invention is an improvement in the method of sewing books and in the sewed book the sheets of which are held together by my peculiar sewing.

The object of this invention is to render the sewing partially elastic, so that strain at one part of the book may be transferred to other threads besides the particular threads that hold the leaves upon which the strain comes. By this improvement the threads are more durable and the binding stronger.

I make use of double threads that pass from opposite directions through between the folds of different sheets and are interlocked by a row of loops, somewhat similar to the chain-stitch in sewing. This renders the line of sewing elastic where the threads are looped together.

My book-sewing machine represented in Letters Patent No. 220,312, October 7, 1879, is capable of performing the sewing according to my present invention, if the parts are timed to move in the manner hereinafter set forth.

In the accompanying diagram, Figure 1 represents the backs of the folded sheets, ready to receive the sewing, and Fig. 2 is a representation of the manner in which the threads are interlooped.

Presuming that curved needles are employed, as shown in said patent, it is to be understood that the needle *a* is to pass through the folded sheet *b*, carrying with it a loop of thread, *e*, and the point of the needle *a* emerges at the saw-cut *c*, and a looper takes a loop of said thread and holds it. The needle *d* now enters the next sheet, *e'*, in the opposite direction, and, passing out at the saw-cut *c*, goes through the loop of thread *e*. The looper moves and drops the loop *e* over the needle *d*, and the thread is drawn up by the take-up. The looper then goes forward and takes loop from the needle *d*, after which said needle draws back, leaving a loop of the thread *i* around the looper.

The needle *a* then enters the next sheet, *f*, and

passing out takes the loop of needle-thread *i* from the looper. Said needle retires, leaving its loop *i*, and then said needle *d* enters the sheet *g*, and passes into the loop of thread *e*, and so on. By this mode of sewing the double threads, passing through the folds of the sheets in opposite directions, will be looped together in the manner indicated at *x x*, Fig. 2, forming an elastic line of interlocked stitches. Where the threads *e* and *i* enter and leave the folds of the sheets the said sheets should be sawed, as at *l m*, and the threads will pass in these saw-cuts from one sheet to the next. It is, however, preferable to employ cords for the threads to pass around, as at *n* and *o*, said cords being drawn by the threads into the grooves. It is, however, necessary to make use of means for moving such cords, as set forth in my said patent, so that the needle at one stitch may pass one side of the cord and at the next stitch on the other side of the cord, so that the threads may go around such cords, as shown in the drawings.

I have only shown one line of the double stitching with the two threads passing from opposite directions and interlocked. It is, however, to be understood that the book may be sewed with two, three, or more such lines of double stitching, there being two needles for each line of double stitching.

A cord may be laid in the groove *c* as the sewing progresses, if desired; or a needle may occupy the lower part of said groove, by which the cord will afterward be drawn in the groove, and the cord will be between the interlocked loops and the folded sheets.

It will also be evident that a strip of parchment or other material, *t*, may be between the interlocked loops and the folds of the sheets, either in the groove *c* or behind the folds of the sheets, and that the respective loops may emerge from the folds of the sheets at sufficient distances apart for the introduction of such strip.

It is to be understood that the looper is to be moved by suitable mechanism, and this will probably form the subject of a separate application.

I claim as my invention—

1. The method herein specified of sewing

folded sheets together to form books, consisting in passing a double thread through at the back of the sheet, passing a second double thread through at the back of the next sheet
5 and in the opposite direction and through the loop of the first thread, then passing the first thread through at the back of another sheet and through the loop of the second thread, and so on, substantially as set forth.
10 2. A book in which the folded sheets are connected at the back by two threads passing double and from opposite directions through the backs of the sheets, and connected by interlocking loops, substantially as set forth.

3. The combination, with the folded sheets, 15 of threads the loops of which are interlocked, substantially as set forth, and a cord or strip between the loops and the folded sheets, as specified.

Signed by me this 17th day of December, A. 20 D. 1880.

DAVID M. SMYTH.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.