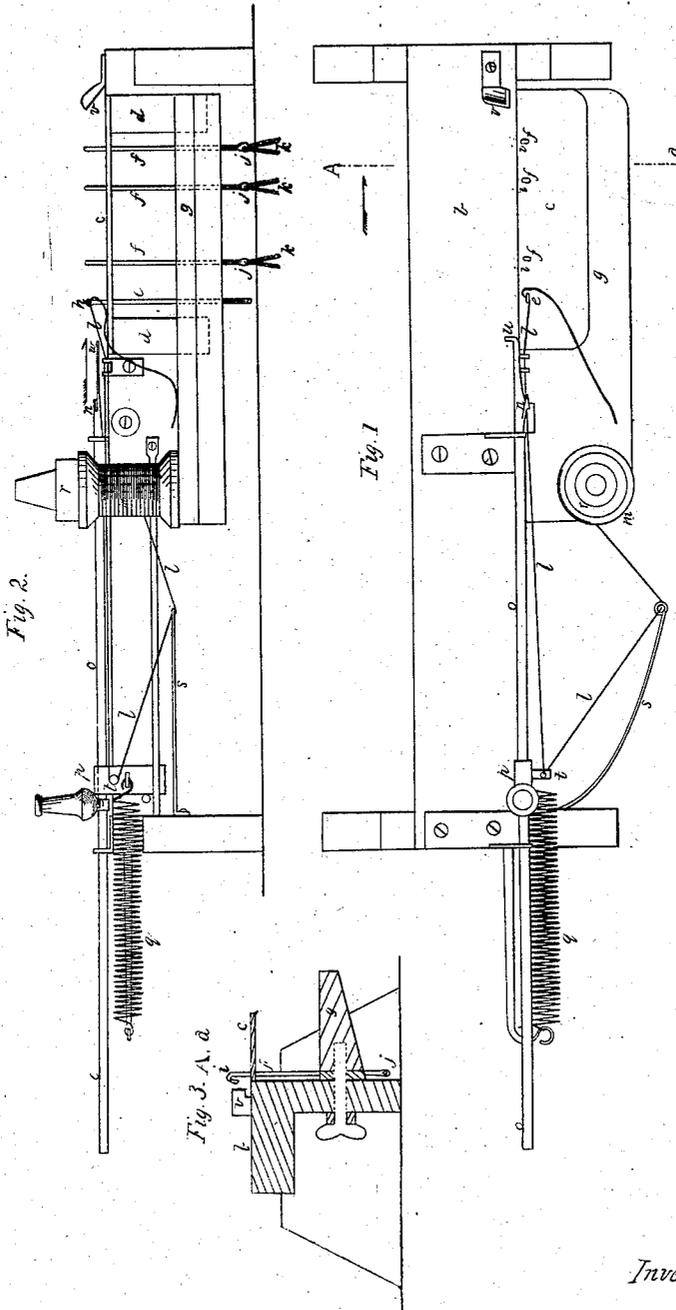


D. M. Smyth.
Sewing Books.

N^o 74948

Patented Feb. 25, 1868.



Witnesses

Wm. C. ...
Wm. ...

Inventor

David M. Smyth

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Fig. 5^a

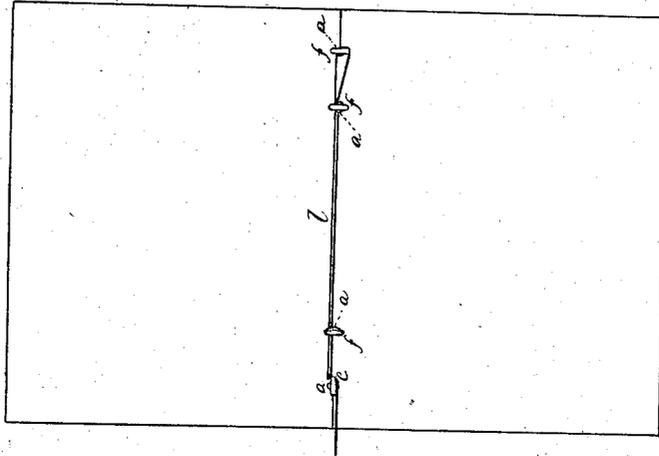
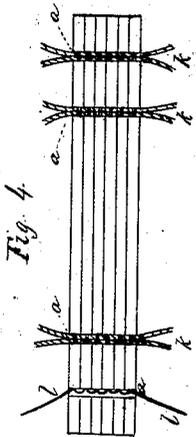
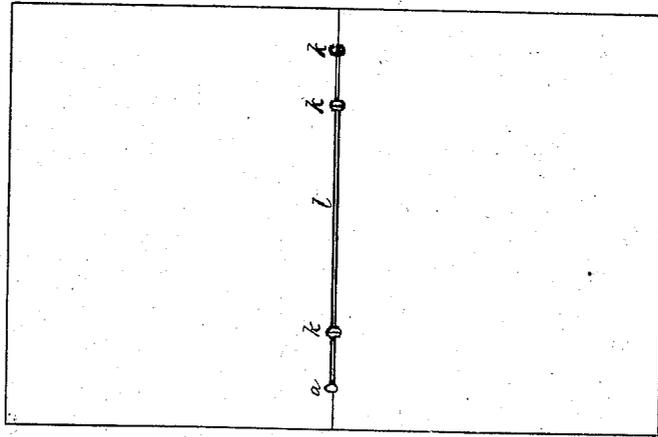


Fig. 5



Witnesses:

A. De Laay.

[Signature]

Inventor

[Signature]

United States Patent Office.

DAVID M. SMYTH, OF ORANGE, NEW JERSEY, ASSIGNOR BY MESNE ASSIGNMENTS TO JOHN T. LARY, OF NEW YORK CITY.

Letters Patent No. 74,948, dated February 25, 1868.

IMPROVEMENT IN MACHINE FOR SEWING BOOKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, DAVID M. SMYTH, of Orange, in the county of Essex, and State of New Jersey, have invented certain new and useful Machinery for Sewing Books; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan or top view.

Figure 2, a side elevation.

Figure 3, a vertical section, taken at the line A a of fig. 1.

Figure 4, an elevation of the back of a book which has been sewed; and

Figure 5, a plan of such a book opened to represent the threads which unite the leaves.

The same letters indicate like parts in all the figures.

The object of my said invention is to sew and unite the several sheets to constitute books or pamphlets, by means more efficient than by any method before known.

The folded sheets which are to be connected or sewed together to constitute a book, are first cut across at the back or folded edge, to form a series of notches as at *a a a a*, four such being represented in the accompanying drawings, but the number may be varied, and should be according to the size of the book. These notches in the back edge form holes through the sheets when they are opened out, as in fig. 5.

The machinery by which the sewing is to be effected consists of two tables, *b* and *c*, on which the sheets of paper to be sewed are successively placed as the sewing progresses, and the one, *c*, is connected by means of slides *d d* with the vertical surface of the other, *b*, the vertical face of which acts as a gauge to the back of the book as it is being sewed, and these slides should move with sufficient freedom, that the table *c* may be pushed down as the sheets are successively piled on.

A series of needles *e* and *f f f*, as many as there are notches in the back edges of the sheets to be sewed, are held in a vertical position against the vertical surface of the table *b*, by means of a clamping-plate, *g*, provided with clamping-screws and nuts, or equivalent means. The first of these needles *e*, has an eye, *h*, near its upper end, and the others, *f*, have a hook, *i*, at the upper end, and an eye, *j*, at or near the lower end. The upper end of all these needles should be some distance above the top surface of the table *b*. A piece of strong thread, *k*, should be passed through the eye of each of the needles *f*, and an interlacing-thread, *l*, from a spool, *m*, should be passed through the eye of the needle *e*, and the loose end carried out of the way, as the loose end of the needle-thread in an ordinary sewing-machine. In that condition a series of sheets (or a single sheet) that has been properly notched at the back edge, is opened out, and laid on the table with one of the notches *a* on each of the series of needles, and in that condition the sewing operation may be commenced.

There is a hook, *n*, near the end, and projecting from the side of a rod, *o*, towards the series of needles, and the back end of this rod is secured to a carrier, *p*, which is adapted to slide in ways. This carrier, with the hook-rod, is moved in the direction of the arrow by the hand of an attendant, or it may be done by a treadle or other suitable means, and it is drawn back by the tension of a helical spring, *q*.

The spool *m* of interlacing-thread *l*, should have a weight, *r*, on it, or other suitable means of resistance to prevent the thread from being given out too freely. And from the spool the thread passes through the eye of a tension-spring, *s*, thence through an eye, *t*, on the carrier, and thence through the eye of the needle *e*. A series of sheets having been placed on the tables and over the series of needles, the carrier *p* is moved in the direction of the arrow, which causes the hook *n* of the rod *o* to pass along in front of the series of needles, and near to them, and in so travelling it catches the loop of the thread *l*, which has been passed through the eye of the needle *e*, and carries it along in front of the other needles *f*, and below the hook, until it gets beyond the last needle, and then the projecting end *u* of the rod *o* passes under an inclined cam-plate, *v*, by which it is slightly depressed, and when it has passed beyond it springs up, and on the return motion it passes over the upper surface of the said cam-plate *v*, whose inclination lifts the hook *n*, and moves it laterally to carry the thread over the hook of the last needle, and around the body thereof, and then, having escaped from the cam-plate, the hook and rod *n o* are drawn back to their original position, thus leaving the thread *l* with the end

below the series of sheets through the hole *a*, in which the needle *e* is, extending along in front of the other needles, around the body of the last of the series, back in front of the others, to and through the eye of the needle *e*, (see Figure 5^a.) That series of sheets is then lifted up to the hooks of the needles *f*, and folded over as required in the book when finished, and then pushed down on to the table, the series of needles remaining in the notches *a* of the sheets, and the thread around the body of the last of the series of needles *f*, within the notches *a*, extending double in the fold of the sheets, and between this and the intermediate needles *f*, and one end of the said thread through the hole *a* to the outside of the sheets at the needle *e*, and the other end extending through the same hole to the eye of the needle. Another series of sheets is then put on in like manner, and the like series of operations performed, and so on until the required thickness of book has been obtained, the table *c* being gradually pushed down that the top of the pile may be on a level with the surface of the table *b*. After one of the series of sheets has been thus treated, the series of needles *f* are drawn out, by which operation their threads *k* are drawn into the notches *a* in the back edge of the folded sheets, the interlacing-thread *l* being around the double thread *k* in the last notch, and the other threads *k* in the other notches, except the first, being, between the bottom of the several notches and the interlacing-thread, double, and the said interlacing-thread extending through the first notch *a* from the inside of one series of sheets to the outside, and from the outside to the inside of the next series, and so on through the entire thickness of the book. After this the two ends of the interlacing-thread *l*, and the ends of the threads *k*, which may be termed the locking-threads, are to be secured to the outside in any suitable manner.

I do not wish to be understood as limiting my claim of invention to the construction or form of the mechanism herein described, nor to the manner in which the several parts are moved, as these may be greatly varied, without departing from the principle or mode of operation of my said invention.

What I claim as new, and desire to secure by Letters Patent, is—

The combination of the needles with hooks at one end and eyes at the other, the needle or its equivalent with an eye at the upper end, and the travelling-hook, the said combination having a mode of operation substantially as and for the purpose specified.

And I also claim the needles with a hook at one end for retaining the interlacing-thread, and an eye at the other for the locking-threads, substantially as and for the purpose described.

D. M. SMYTH.

Witnesses:

WM. H. BISHOP,
A. DE LACY.