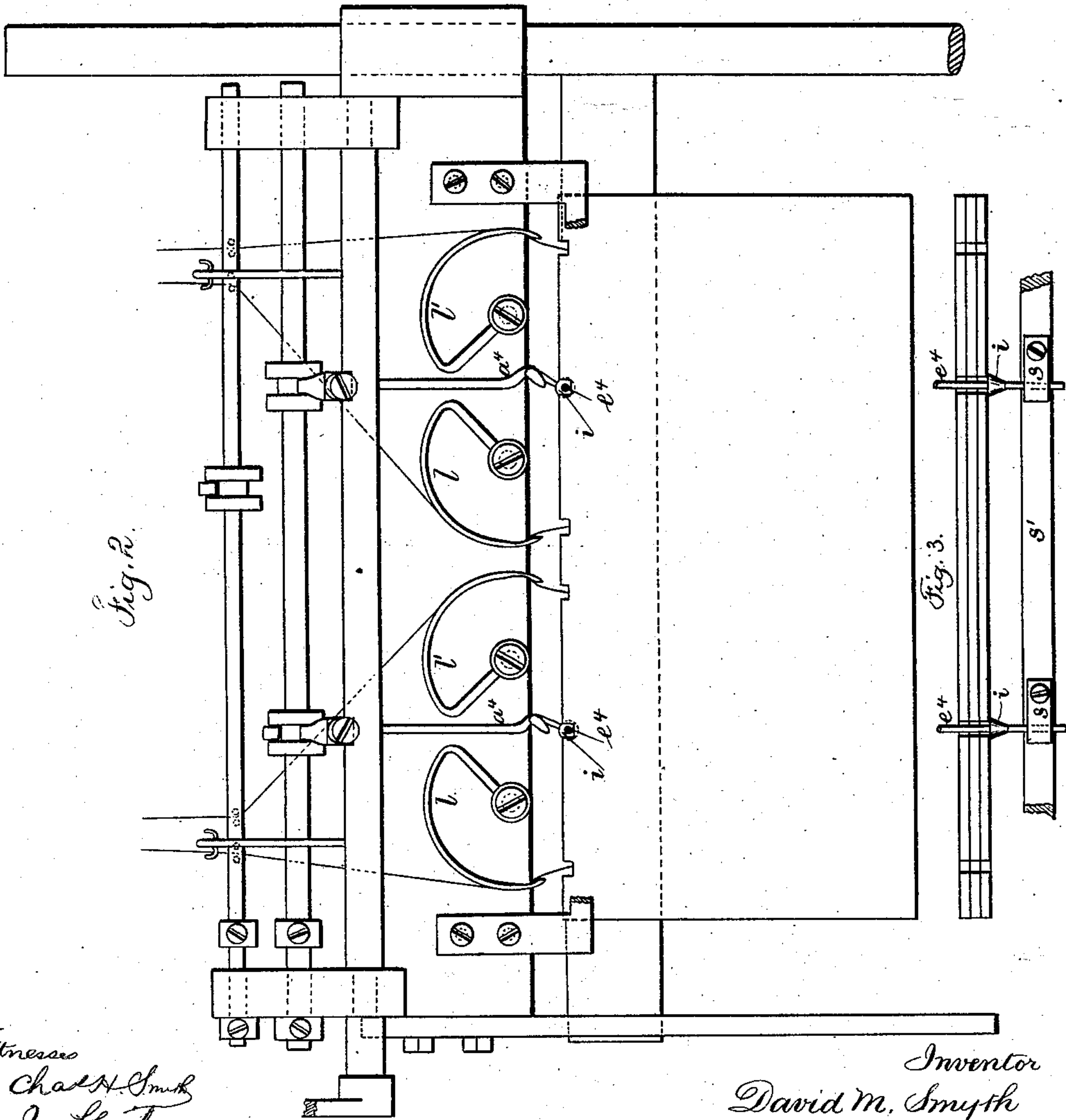
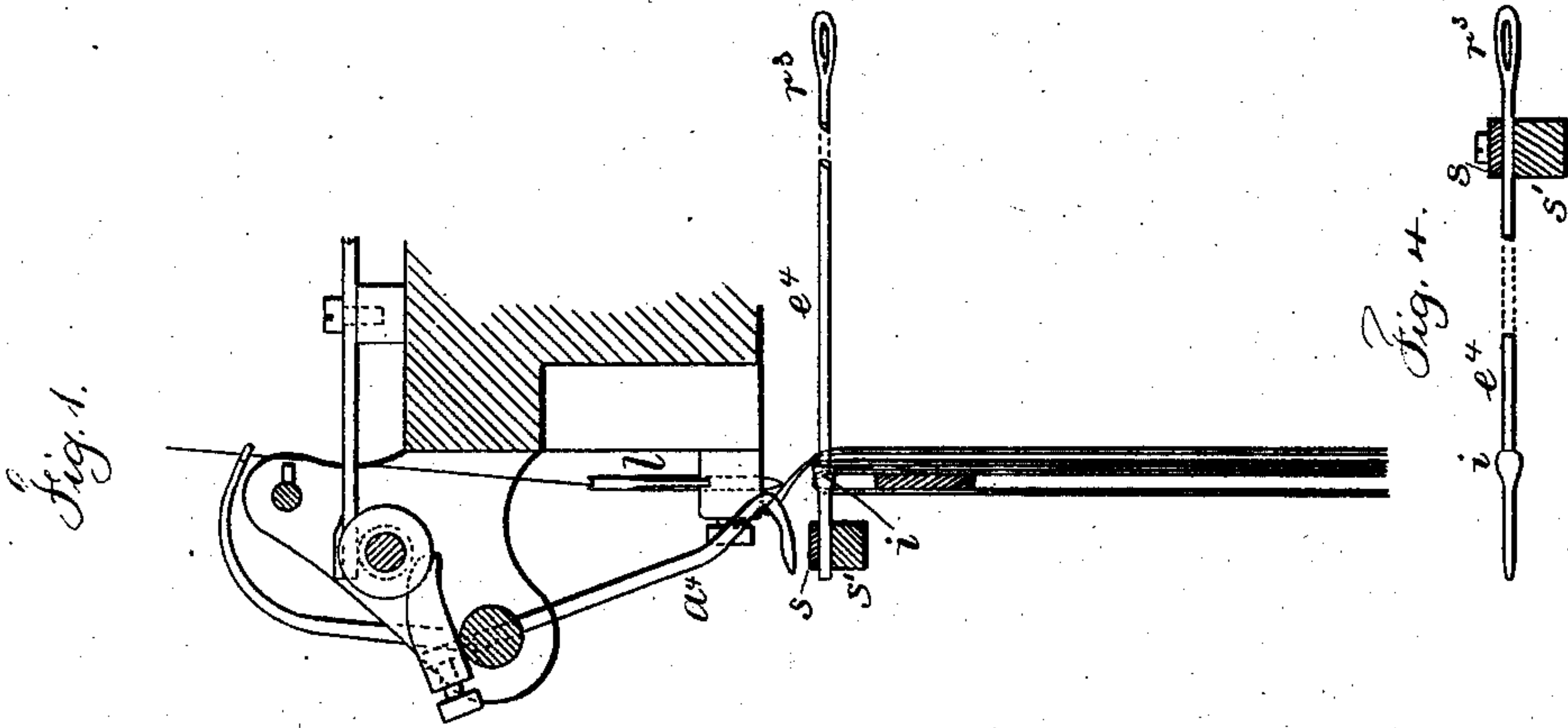


(No Model.)

D. M. SMYTH.  
BOOK SEWING.

No. 259,058.

Patented June 6, 1882.



Witnesses  
Chas. H. Smith  
J. Hall

Inventor  
David M. Smyth  
per Lemuel W. Ferrell atty



# UNITED STATES PATENT OFFICE.

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

## BOOK-SEWING.

SPECIFICATION forming part of Letters Patent No. 259,058, dated June 6, 1882.

Application filed February 27, 1882. (No model.)

*To all whom it may concern:*

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

In Letters Patent No. 220,312 a machine is shown for sewing books with semicircular needles, and devices are described for presenting the sheet to the sewing mechanism. A reference is hereby made to the said patent for these devices.

In Letters Patent No. 238,451 a mode of sewing books is described, wherein a loop of thread passing through the back of one signature is looped through a loop of thread of the previous signature, and a cord is laid in the groove below the loops, or else the needle occupies the groove and a cord is afterward drawn in. A reference is hereby made to the said patent.

My present invention is made for preventing the sheet that has been sewed from falling toward the sheet that is being sewed, because in cases where, from the elasticity of the paper or otherwise, the sheet that has been sewed presses toward the sheet that is being operated upon the loop of thread that is held by the looper does not have the room which is necessary for it in order to allow the needle that takes the next stitch to pass through such loop in a reliable manner.

I make use of a needle that has upon it a sheet-keeper in the form of a small ball or projection, which is slightly larger than the groove that is sawed in the back of the book, and this is at such a place on the needle with reference to the place where the sewing is performed that when the sewed sheet is pressed back the same passes from one side of the sheet-keeper to the other, and said sheet-keeper on each needle forms a sufficient resistance to prevent the sheet springing back into its former position. This also allows for the loops of thread remaining sufficiently long and loose for the sewing to be of the right tension, for with books the binding is liable to break if the threads are not left sufficiently loose.

In the drawings, Figure 1 is a vertical section of the sheet and an elevation of the sheet-keeper and needle. Fig. 2 is a front elevation.

Fig. 3 is a plan of some of the sheets, the needles, and the supporting-bar; and Fig. 4 is a view of the needle with the support at the back end.

The needles  $l$   $l'$  and the loopers  $a^4$  are of the character described in the aforesaid Letters Patent and in that numbered 250,991, and the means for moving the looper and for giving motion to the needles and performing the sewing are the same as in said patents. There will be one needle,  $e^4$ , for each pair of curved needles, and the needles lie in the grooves or saw-cuts in the back of the signatures, and the threads, as looped together in the form shown in Fig. 3 in said Patent No. 250,991, will come above said needle, and the needle may either be supported at the back end, as shown in the detached view, Fig. 4, or at the front end, as seen in Fig. 1. In either instance the support is in the form of a clamp,  $s$ , upon a cross-bar,  $s'$ , sustained by the frame of the machine.

The sheet-keeper is in the form of a projection,  $i$ , upon the needle, and the needle is adjusted lengthwise so that the said sheet-keeper is between the sheet that is being sewed and the previously sewed sheet. It is preferable to form this projection either conical or globular, and it is to be slightly larger than the saw-cut in the back of the signature, so that after the signature has been sewed and the sheet-holder is moved back to carry such sheet firmly against the previously sewed sheets of the book, as in my aforesaid patents, the sheet is pressed behind this projection and kept by it back in its proper position, the looper  $a^4$  meanwhile holding the loop of thread so that when the next sheet is brought up to its position to be sewed the needle  $l$  or  $l'$  will pass freely into said loop, after which the looper will drop such loop over said needle, and then take a loop of thread from the curved needle, and the operations are repeated.

In cases where the needle is held at the front end it is preferable to employ an eye,  $r^3$ , at the back end, into which is passed the cord that is drawn into the saw-cut beneath the interlocking loops as the signatures are pulled off the needles.

If the needle is held at the back end, as seen

in Fig. 4, said eye  $r^3$  might be at the front end adjacent to the sheet-keeper; but it is preferable to have it at the back end, as shown.

I claim as my invention—

5 The combination, with the sewing mechanism and sheet-holder in a book-sewing machine, of a needle occupying the channel cut in the backs of the signatures, and a projection upon

such needle forming a sheet-keeper, substantially as set forth.

Signed by me this 18th day of February, A. D. 1882.

DAVID M. SMYTH.

Witnesses:

GEO. T. PINCKNEY,

WILLIAM G. MOTT.