

(Model.)

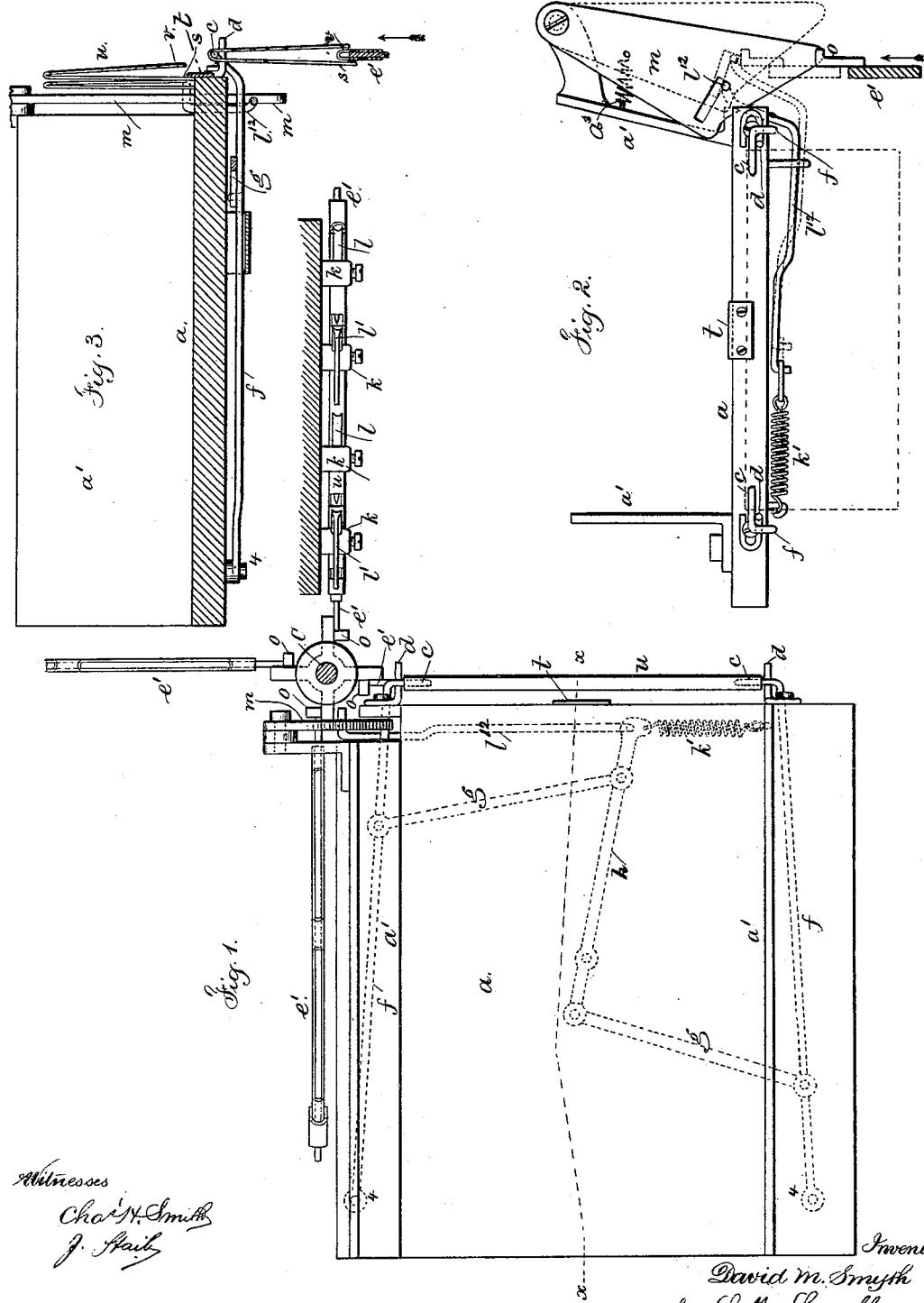
2 Sheets—Sheet 1.

D. M. SMYTH.

BOOK SEWING MACHINE.

No. 262,326.

Patented Aug. 8, 1882.



Witnesses

Charl. H. Smith  
J. H. Davis

Inventor

David M. Smyth  
for L. W. Terrell, *etc.*

(Model.)

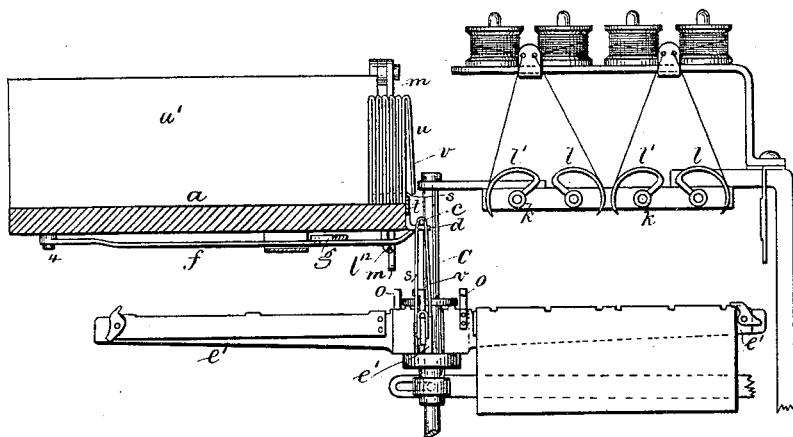
2 Sheets—Sheet 2.

D. M. SMYTH.  
BOOK SEWING MACHINE.

No. 262,326.

Patented Aug. 8, 1882.

Fig. 4.



Inventor

D. M. Smyth

for Lemuel W. Terrell

atty

Witnesses

Char H. Smith  
Harold Terrell

# UNITED STATES PATENT OFFICE.

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

## BOOK-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 262,826, dated August 8, 1882.

Application filed May 16, 1881. (Model.)

*To all whom it may concern:*

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

This invention is an improvement upon the machine for which Letters Patent No. 220,312 were granted to me, and a reference is hereby made to the same, by which to more fully understand the construction and operation of the present devices.

My present invention relates to improvements in the means for feeding the folded sheets of paper to the sewing-machine, so that the machine may be run with greater rapidity than it could be when fed by hand in the manner contemplated by my aforesaid patent.

In the drawings, Figure 1 is a plan of the feed-table and of the revolving and vertically-moving arms  $e'$ , that form the sheet-holders. Fig. 2 is an elevation of the sheet-holding fingers and feed-table. Fig. 3 is a section at the line  $x x$  of Fig. 1; and Fig. 4 is a section similar to Fig. 3, and an elevation of the sewing-needles and sheet-holders similar to those represented in my said Patent No. 220,312.

The feed-table  $a$  is supported above the revolving sheet-holding arms  $e'$  of the said patent, and preferably at the front part of the machine at the left of the needles, and with its right-hand edge adjacent to the arm  $e'$ , that will next move to the position for the sheet to be sewed.

The needles  $l'$  on the shafts  $k$  are similar to those on the aforesaid patent, and they do not need further description. The arms  $e'$  are grooved on their upper edge for the passage of the half-circle needles, and the vertical shaft  $C$ , that carries the arm  $e'$ , has a vertical movement given to it at the proper time, as well as the progressive movement to carry the sheet around to the place where it is sewed.

The table  $a$  has sides  $a'$ , between which the folded sheets are packed with the back folds upwardly, and the operator takes the last sheet and hangs it upon the fingers  $c c$ , immediately over the sheet-holding arm  $e'$ . The fingers slightly open the sheet, and as the arm  $e'$  is raised—simultaneously with the other arms by

the vertical movement given to the shaft  $C$ —the arm  $e'$  passes into the folded sheet, and the fingers  $c c$  are drawn back and the folded sheet drops upon the arm  $e'$  in its proper position, and while the arm is descending again, and then moving away, carrying the sheet to be sewed, the operator is placing another sheet on the fingers  $c c$ . This gives much more time for adjusting the sheet than is given in the machine patented as aforesaid during the brief pause in the movement of the shaft and sheet-holding arms. The adjustable gage-wires  $d d$  serve to determine the position of the sheet upon the fingers, and to prevent end movement to the sheet as the fingers are drawn back to drop the sheet. These fingers may be drawn back by any convenient means. I prefer and use the devices shown, which consist of the levers  $f f$ , pivoted at 4, and connected by the links  $g g$  to the lever  $h$ . (Shown by dotted lines in Fig. 1.) The spring  $k'$  serves to keep the fingers in their position to receive the folded sheet, and the latch-rod  $l^2$ , passing to the pivoted cam-plate  $m$ , serves to withdraw the fingers by one of the arms  $e'$  as it rises, coming against the inclined lower end of the cam-plate and moving it and the latch-rod and fingers, and dropping the sheet, as aforesaid, over the sheet-holding arm in the manner indicated in Fig. 3. The parts would return to their normal position as the arm  $e'$  again descended; but to return the fingers instantly to position after the sheet has dropped I employ the lifter  $o$  upon the arm  $e'$ , that comes up below the end of the latch-rod  $l^2$  in the manner indicated in Fig. 2, and lifts the same from its notch at the end of a slot in the cam-plate  $m$ , allowing the latch-rod to slide back instantly by the action of the spring  $k'$ , and restore the parts to their proper positions for the next sheet to be placed on the fingers. The latch-plate  $m$  is to be swung back to place by a spring,  $a^3$ , as the arm  $e'$  descends, and the latch-rod drops into its notch ready for the next operation.

In folding printed sheets it is usual to allow the edges of the sheet that are not folded to project slightly beyond the folded edge, as indicated in Fig. 3. I avail of this to aid the operator in opening the sheet before dropping it over the fingers, and for this purpose I place

one or more stationary lips, *t*, at the edge of the feeding-table, so as to arrest the loose edges *s* of the folded sheet *u* and allow the folded edges *v* to pass out beyond the lip, as indicated in Fig. 3. Hence the operator easily raises the part *s* over the lip and drops the sheet *u* on the fingers.

I claim as my invention—

1. The combination, with the sheet-holding arms in a book-sewing machine, of the fingers *c c* for supporting the sheet, and mechanism, substantially as described, for withdrawing the fingers and allowing the sheet to drop upon the sheet-holding arm, substantially as set forth.
2. In a book-sewing machine, the combination, with the sheet-supporting fingers *c c*, of the adjustable gages *d d*, and mechanism, substantially as described, for moving the fingers and for conveying the sheet to the sewing mechanism.
3. The combination, in a feeding mechanism

for book-sewing machines, of the fingers *c c*, gages *d d*, levers *f f* and *h*, links *g g*, spring *k'*, cam-plate *m*, latch-bar *l*, and lifter, substantially as set forth.

4. The method herein specified of partially opening the folded sheets or signatures in a book-sewing machine, consisting in placing the said folded sheets upon a table with the back folds upwardly, and moving such sheets along to a lip upon the table, which is of a height to arrest one part of the end signature and allow the other part of such signature to pass over the same and partially open the sheet, substantially as set forth.

Signed by me this 7th day of April, A. D. 1881.

DAVID McCONNEL SMYTH.

Witnesses:

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

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