

J. C. SMYTH.  
Machinery for Stitching Books with Staples.

No. 223,252.

Patented Jan. 6, 1880.

Fig. 1.

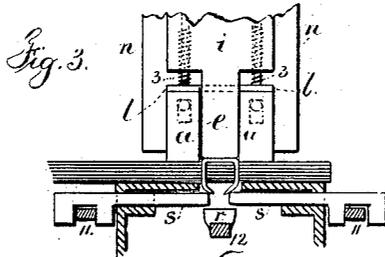
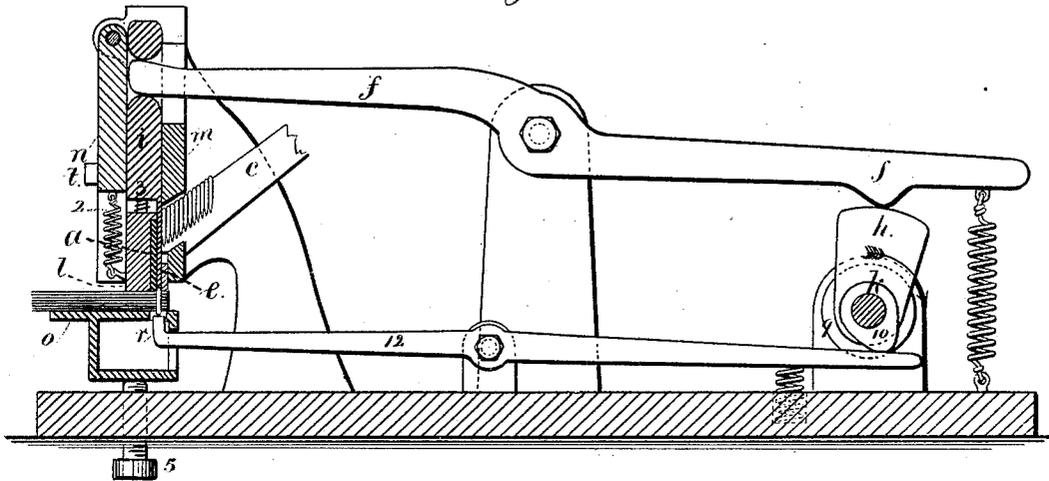
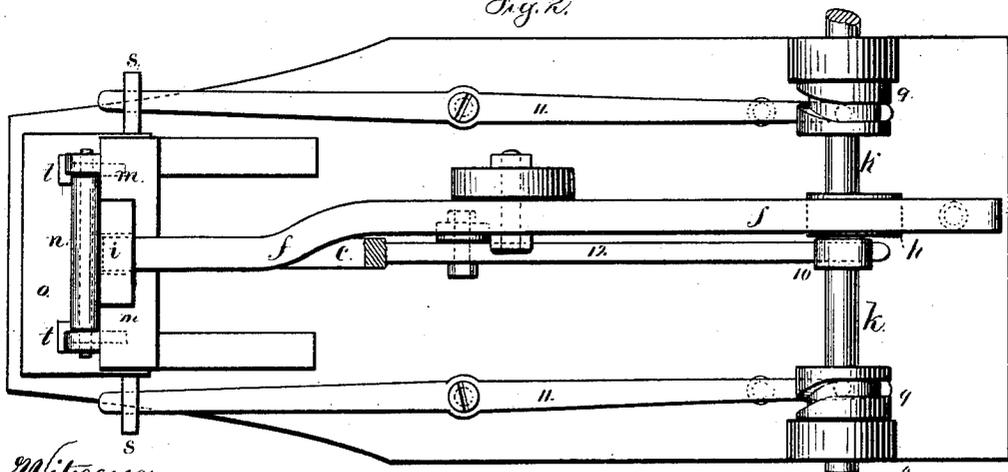


Fig. 2.



Witnesses.

Chas. A. Smith  
Geo. T. Pinckney

Inventor

James C. Smyth  
per Lemuel W. Perrell atty

# UNITED STATES PATENT OFFICE.

JAMES C. SMYTH, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BOOK SEWING MACHINE COMPANY, OF SAME PLACE.

## MACHINERY FOR STITCHING BOOKS WITH STAPLES.

SPECIFICATION forming part of Letters Patent No. 223,252, dated January 6, 1880.

Application filed March 10, 1879.

To all whom it may concern :

Be it known that I, JAMES C. SMYTH, of Boston, in the State of Massachusetts, have invented an Improvement in Machinery for  
5 Stitching Books with Staples, of which the following is a specification.

This invention relates to a device for driving staples through books, pamphlets, or sheets of paper or other material, bending up the  
10 ends, and compressing the staple firmly to the material.

In the drawings, Figure 1 is a vertical section of the machine. Fig. 2 is a plan of the same; and Fig. 3 is a sectional elevation, showing the sheet-holder, plunger, magnet, bending-slides, and hammer.

The staples are fed upon the staple-bar *c* by any convenient means—such, for instance, as those shown in my Patent No. 187,189.  
20 These staples slide down the bar *c*, and the end staple is attracted to and held by a magnet, *a*, which may be an electro-magnet, but is preferably a permanent magnet attached to a movable block, *l*, hereinafter described.  
25 This magnet prevents the staple dropping, for there is a channel for the staple between the face of the magnet *a* and the end of the staple-bar *c*. There are openings at the sides of the bar *c* for the ends of the staples to enter freely into the vertical channel; but this channel is of a  
30 size adapted to receive and hold a staple of a certain size of wire; but the length of the prongs of the staple should be only sufficient to pass through the book and be bent up or  
35 clinched.

The staples vary in length. Hence the machine has to be adapted to the longest staples, the openings at the sides of the staple-bar *c* being sufficiently long for such staples to pass  
40 into the channel.

The lowest staple, regardless of the length of its prongs, is held by the magnet at one side of the channel, and the other staples upon the bar *c* cannot descend until this staple is  
45 carried down by the plunger *e* and driven through the book. The plunger *e* rises and the staples slip down the bar, and another staple is attracted by the magnet.

It is to be understood that the plunger *e* is  
50 driven by any suitable means. I have shown

the lever *f* and cam *h* upon the revolving shaft *k* as the means for moving this plunger.

The magnet will not exert enough power to interfere with the plunger in slipping the staple along its surface, but such magnet will insure  
55 the proper position of the staple.

In order to guide the staple at the surface of the book, I make the block *l*, that carries the magnet, and in which is the staple-channel, movable vertically between the stationary  
60 head-block *m* and the cap-plate *n*, and there is a spring, *2*, to raise this block to allow for the insertion of the book between its lower end and the surface of the bed *o*; and springs *3 3*, between the plunger-carrier *i* and this block  
65 *l*, serve to force the block *l* down to the surface of the book as the plunger-carrier descends, after which the staple is driven by the further movement of the staple-driver.

The cap-plate *n* is hinged at the top, so  
70 that it can be swung forward, together with the plunger and block *l*, to give access to these parts, if necessary, and said cap is retained in place by the turning buttons *t*.

The bed *o* can be raised or lowered to suit  
75 different thicknesses of books by the screw or screws *5*. There is a mortise in the surface of the bed *o*, into which the ends of the staples pass, and in the bed are the two bending-slides *s s*, that are in line with the mortise, and there  
80 is also a vertical sliding hammer, *r*, that is in the mortise below the surface of the bed. Cams *9 9* and *10* upon the main shaft *k* actuate these bending-slides *s* and hammer *r*  
85 through the agency of levers *11 11* and *12*, respectively. The shapes of the cams are such and the parts are timed so that after the staple is driven through the book the driver *e* pauses, the bending-slides *s s* come up, bend the staple-points toward each other, and then fly back,  
90 and the hammer *r* flattens the points against the book.

I claim as my invention—

1. In a staple-driving machine, a magnet  
95 against the face of which the side of the staple is attracted and kept in position, in combination with the staple-driver that is moved along the face of the magnet toward the book, and the means for supporting the book into which the staple is driven, substantially as set forth.  
100

2. The block *l*, adapted to move vertically, and provided with the channel for the staple, in combination with the plunger-carrier and plunger for driving the staple and moving the  
5 block *l*, and the bed for supporting the book, substantially as specified.

3. The combination, in a staple-driving machine, of a driver to drive the staple through the book, a bed to support the book, a pair of  
10 bending-slides, *s s*, acting horizontally below

the book, and a hammer, *r*, acting upwardly to clinch the ends of the staple, substantially as set forth.

Signed by me this 30th day of September,  
A. D. 1878.

JAMES C. SMYTH.

Witnesses:

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