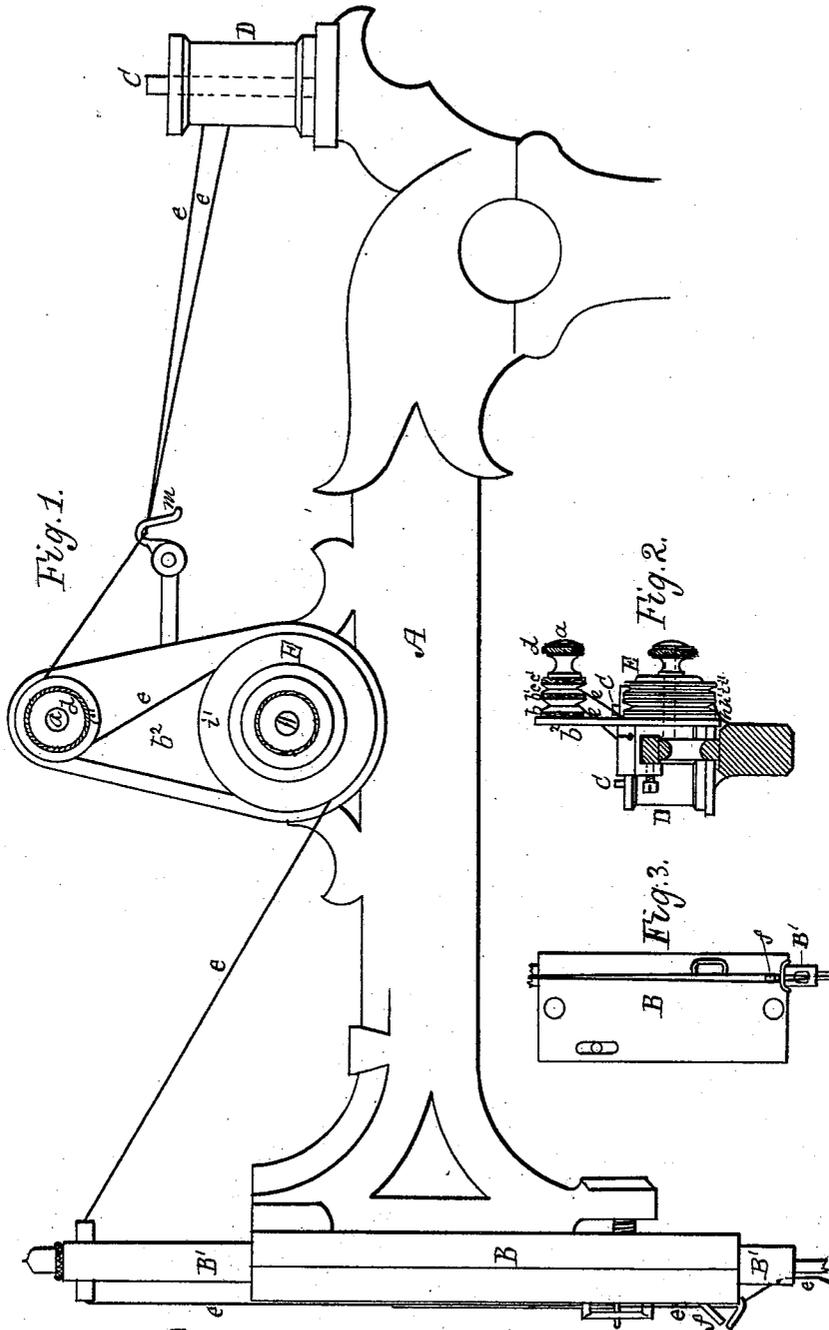


C. K. BRADFORD.  
Sewing-Machine.

No. 209,157.

Patented Oct. 22, 1878.



Witnesses. *Chas. F. Andrews* & *Louis A. Curtis.*  
Inventor. *C. K. Bradford.*  
*F. Curtis, Atty.*

# UNITED STATES PATENT OFFICE

CHARLES K. BRADFORD, OF LYNNFIELD, ASSIGNOR TO J. FRANKLIN FAXON,  
OF QUINCY, AND J. WARREN FAXON, OF BOSTON, MASS.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **209,157**, dated October 22, 1878; application filed  
February 28, 1878.

*To all whom it may concern:*

Be it known that I, CHARLES K. BRADFORD, of Lynnfield, in the county of Essex and State of Massachusetts, have invented certain Improvements in Sewing Mechanism, of which the following is a specification:

This invention relates to a system of sewing in double-upper double-thread sewing-machines, or those in which two upper threads from independent spools are employed with one needle, the purpose of my invention, which consists in the employment of an additional or auxiliary set of tensions, plates, or other tension mechanism, in combination with the tension mechanism proper of the machine, being to present the two threads to the latter in an equally taut and advantageous manner, and prevent the injurious results which in this particular method of sewing follow from the unequal manner in which the threads are delivered from the two spools; and my invention further consists in the employment of a pin or other means of separating the two threads immediately prior to entering the last eye or guide in or above the needle-bar, the purpose of this being to make sure that the two threads, when laid into stitches by the machine, shall maintain the same relative position, and not cross and recross each other, this being especially important where parti-colored threads are employed.

The drawings accompanying this specification represent in Figure 1 a side view, in Fig. 2 an edge view, and in Fig. 3 a section, of my invention.

In these drawings, A represents the horizontal portion of the curved standard or goose-neck of a sewing-machine, while B represents the head thereof, and B' the needle-bar. At the rear end of the goose-neck, and upon the top of the same, I erect two posts, C C, to receive each a spool, D, of thread, while some distance in advance or front of such posts I attach to an upright plate or standard,  $b^2$ , which, in turn, is erected upon the top of the goose-neck, a tension mechanism, E, which is the tension proper of the machine, and in the present instance consists of two pairs,  $h h'$   $i i'$ , of disks, mounted upon a horizontal pivot, and seizing the threads between them, such tension mechanism being generally known as

the "Howe tension." I do not confine myself to this particular tension; however, as various others may be substituted, and two sets of disks may be employed, if deemed desirable, in order that each thread may be subjected to independent tension at this point.

In carrying out the first feature of my present improvement, I add to the upper part of the plate  $b^2$ , by means of a horizontal pivot,  $a$ , and so as to take effect between the spool-posts C C and tension mechanism E, two pairs of tension-plates,  $b b'$  and  $c c'$ , the tension upon the whole of these plates being governed equally by a nut,  $d$ , screwed upon the outer end of the pivot.

The threads  $e e$  from the two spools C C extend to and pass separately between the opposite tension-plates  $b b'$  and  $c c'$ , and thence to and separately between the tension-plates of the common tension mechanism E, and from the latter to the needle, as shown.

The auxiliary tension-plates  $b b' c c'$  have the effect of delivering the two threads  $e e$  to the tension E in a uniformly taut condition, which is of the greatest importance, and they tend also to overcome the objections resulting from the unequal delivery of the threads from the different spools by the action of the sewing-machine, each of which, without my improvement, may at times be taut and at times very slack before reaching the tension.

In carrying out the second feature of my improvement, I secure to the front lower part of the goose-neck A a horizontal stud or pin,  $f$ , which is disposed above the needle and intermediate between the two threads, and serves to separate the two threads immediately prior to their entering the eye or eyes of the needle. By separating the threads in this manner, I find that they maintain their relative position, and do not cross or change from side to side when laid into stitches, which is of importance, especially when parti-colored threads are employed. I cannot account for this result in the use of the stud  $f$ , but I have found in numberless trials that it is the case.

In lieu of arranging the two pairs of disks  $b b' c c'$  on one pivot or stud, as shown in the drawings, governed by one common screw, they may be on independent studs, each governed by a screw.

I claim—

1. In a sewing machine in which two upper threads are employed with a single needle, a main tension for controlling the thread-delivery to the needle, provided with a separate and distinct thread-passage for each of the two threads, in combination with an auxiliary tension, provided also with a separate and distinct thread-passage for each thread, and arranged to control and equalize the delivery of the two threads from the spools to the main tension, as set forth.
2. In combination with the two upper threads and the needle, a thread-separating device, which separates said threads immediately prior to their entering the needle, as and for the purposes set forth.

CHAS. K. BRADFORD.

Witnesses:

F. CURTIS,  
L. A. CURTIS.