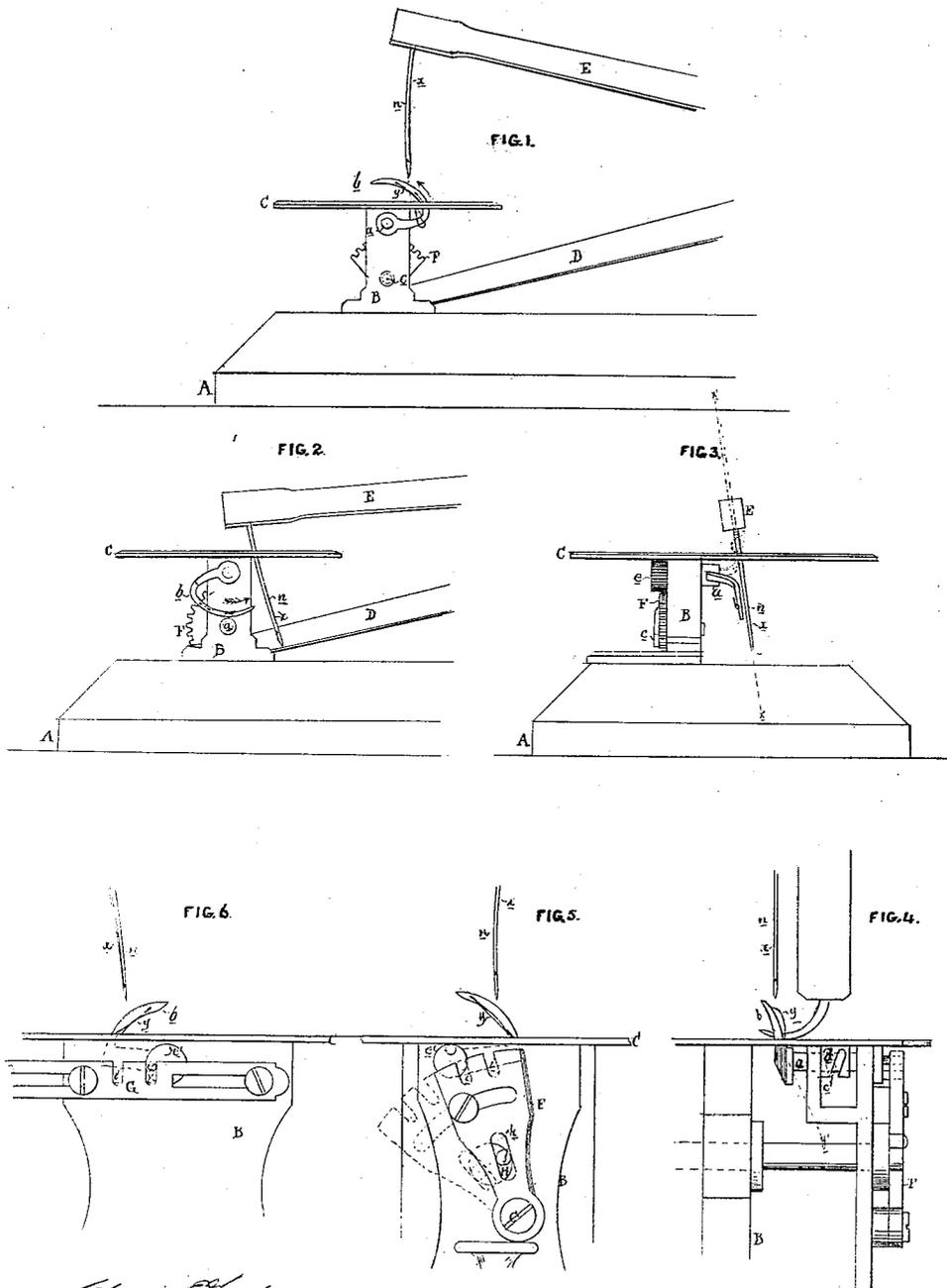


E. A. GOODES & E. L. MILLER.  
 BUTTONHOLE SEWING MACHINE.

No. 61,533.

Patented Jan. 29, 1867.



Witnesses: *Charles H. Haskins*  
*Charles H. Haskins*

*Henry Rowson*  
 Atty for Goodes & Miller

# United States Patent Office.

E. A. GOODES AND E. L. MILLER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE AMERICAN BUTTON-HOLE MACHINE COMPANY, ASSIGNORS TO THE AMERICAN BUTTON-HOLE, CORDING, BRAIDING, AND EMBROIDERING MACHINE COMPANY.

Letters Patent No. 61,583, dated January 29, 1867.

## IMPROVEMENT IN BUTTON-HOLE SEWING MACHINES.

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

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, E. A. GOODES and E. L. MILLER, both of Philadelphia, Pennsylvania, have invented an Improvement in Sewing Machines; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

Our invention consists in the arrangement and combination, described hereafter, of an inclined vibrating needle-arm, eye-pointed needle, and a vibrating loop-holder or carrier for making a button-hole stitch over the edges of fabrics. On reference to the accompanying drawing, which forms a part of this specification—

Figure 1 is a side view of sufficient of a sewing machine to illustrate our improvement.

Figure 2, the same, with the parts in different positions.

Figure 3, a front view; and

Figures 5, and 6 illustrate the different modes of operating the loop-holder.

Similar letters refer to similar parts throughout the several views.

A is the base of the machine, upon which is erected the standard B, and to the top of the latter is secured the work-plate C. E is the needle-arm, to the outer end of which is secured the ordinary eye-pointed needle *n*, the said needle-arm being placed at such an angle that it will carry the needle *n* in a diagonal path, coinciding with the line X X', fig. 3. Through the standard B passes a rod, *a*, upon the outer end of which is a toothed pinion, *e*, gearing into teeth on the edge of a segment, F, the latter being hung to a pin, *e*, on the side of the standard B. To the lower end of the segment F is connected a rod, D, which is actuated from any moving part of the machine by suitable mechanism. To the inner end of the rod *a* is secured a curved loop-holder, *b*, through eyes in which passes the under thread *y*, the upper thread *x* passing through the eye of the needle *n*. The different parts of the machine being in the position shown in fig. 1, (and in dotted lines, fig. 3.) and the cloth having been so placed upon the work-plate that the loop-holder *b* shall pass through the button-hole and in front of the edge to be sewed, the machine is set in motion. The needle *n* descends, perforating the fabric near the edge to be sewed, until it reaches the limit of its downward movement, the loop-holder at the same time moving in the arc of a circle through the button-hole from the position shown in fig. 1 to that shown in fig. 2. As the needle *n* rises the loop-holder moves upwards, carrying the under thread through the loop of needle-thread, both holder and needle finally reaching the limit of their upward movement, as seen in fig. 1. As the needle *n* again begins its downward movement, and the loop-holder begins to recede, the thread at the side of the latter is looped sufficiently to allow the needle *n* to pass through it into the fabric, while the loop-holder, continuing its receding motion, draws the thread over the edge of the fabric and beneath the same. At the next movement the loop-holder carries the under thread through the loop of needle-thread at the side of the needle *n*, over the edge of the fabric to its first position, where the loop is again secured to the top of the fabric by the needle-thread as before. It will be observed on reference to fig. 3 that the needle, in commencing its downward movement, passes the loop-holder on one side of the latter, and that as the needle approaches the limit of this movement it passes the loop-holder on the opposite side of the same; in other words, the path traversed by the needle crosses that traversed by the loop-holder, and, consequently, as both needle and loop-holder begin to rise, there is more certainty of the loop-holder passing through the loop of needle-thread, and (as both needle and loop-holder descend) of the needle passing through the loop of under thread than if their paths were parallel with each other.

It will now be seen that the loop-carrier will convey loops of thread from the under side and upwards across the edge of the fabric to be locked to the same by the needle-thread, and that the stitch produced is precisely the same as the double-threaded stitch described in our patent of July 26, 1859, reissued February 9, 1864.

In place of the rod D for imparting a vibrating motion to the segment the latter may be operated directly from a rotary shaft, H, (fig. 5,) from the end of which a pin, *j*, projects and works in a slot, *k*, in the segment. In the upper edge of the latter are slots *i*, into which project pins *e'* from a disk on the outer end of the rod *a*,

so that, as the segment vibrates, the desired movement will be imparted to the loop-holder. Instead of the segment F a sliding-plate, G, may be used, (fig. 6,) the pins *e'* on the end of the rod *a* projecting into slots *i* on the upper edge of the plate G.

We claim as our invention, and desire to secure by Letters Patent—

The arrangement and combination, herein described, of the inclined vibrating needle-arm E, its eye-pointed needle *n*, and the vibrating loop-holder or carrier *b*, for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

E. A. GOODES,  
E. L. MILLER.

Witnesses:

HENRY HOWSON,  
CHARLES E. FOSTER.