

J. E. A. GIBBS.
SEWING-MACHINE.

No. 171,557.

Patented Dec. 28, 1875.

Fig. 1.

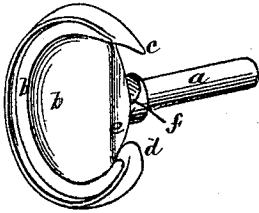


Fig. 2.

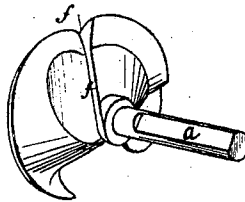


Fig. 3.

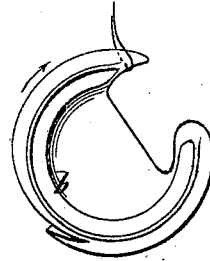


Fig. 4.

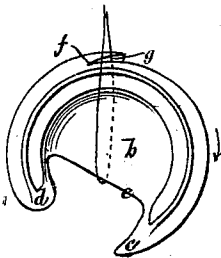


Fig. 5.

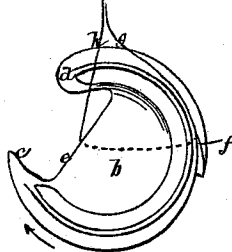


Fig. 6.

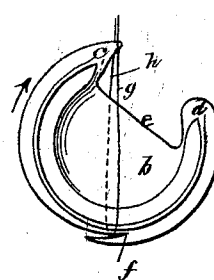
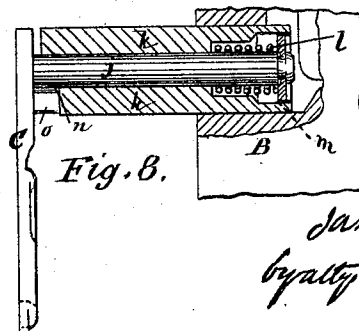
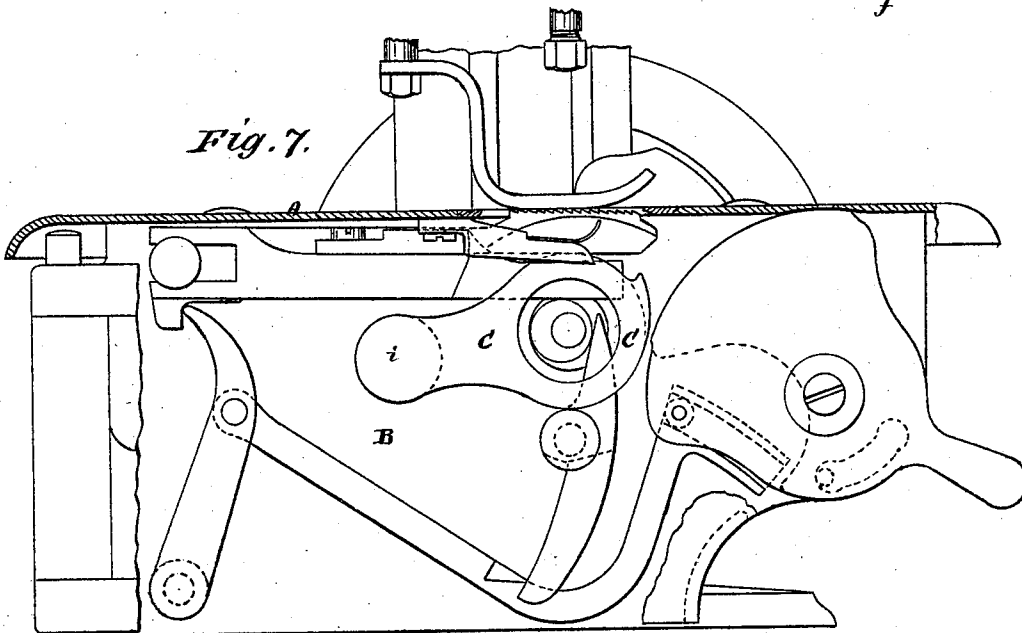


Fig. 7.



Witnesses:

Emellapack
W. E. Chaffer.

Fig. 8.

Inventor:

Jas. E. A. Gibbs
by Atty. Fowler & Bailey.

UNITED STATES PATENT OFFICE.

JAMES E. A. GIBBS, OF STEELE'S TAVERN, VIRGINIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **171,557**, dated December 28, 1875; application filed May 25, 1875.

CASE A.

To all whom it may concern:

Be it known that I, JAMES E. A. GIBBS, of Steele's Tavern, Augusta county, Virginia, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification:

My invention in sewing-machines has reference to that class of machines known as lock-stitch machines, and particularly to that kind of such machines in which a rotary hook is employed to interlock the upper and under threads.

My invention relates principally to the structure and operation of the revolving hook. It also relates to the bobbin-holder or movable device by which the bobbin that carries the under thread is held against or in its proper relations to the hook.

The hook, in which my invention is comprised, is designed to be rigidly mounted upon a revolving shaft, and is a bobbin-containing hook—that is to say, one formed, as is usual in revolving-hook lock-stitch sewing-machines, with a recess on one face to receive the bobbin. It is characterized by a certain construction and formation, substantially as hereinafter described, whereby the loop taken by it from the needle is carried over the face and rear of the body of the hook. The position to which the loop is carried by the revolving hook is one diametrically, or nearly so, across the body in front and rear of the latter, which position, or substantially which position, the loop maintains until released by and upon completion of the revolution of the hook.

The bobbin-holder which I have devised is pivoted, and capable of oscillating on said pivot in a plane parallel, or substantially so, with the face of the bobbin. It also is capable of moving bodily in a direction at right angles with its plane of oscillation. The former movement is for the purpose of bringing it in front of or removing it from in front of the bobbin, as the case may be. The latter movement is for the purpose of causing it to press toward or retire from the bobbin. The mechanism which renders the bobbin-holder capable of these two movements is so combined and arranged that, when the pivoted

bobbin-holder is brought in front of the bobbin, it will thereby be caused to press toward or against the bobbin, and vice versa.

To enable those skilled in the art to understand and use my invention, I will now proceed to describe the manner in which the same is or may be carried into effect by reference to the accompanying drawing, in which—

Figure 1 is a perspective view of my hook looking at it from the front. Fig. 2 is a like view of the same from the rear. Figs. 3 to 6 are diagrams indicating the positions assumed by the loop at various points in the revolution of the hook.

The hook being designed for rigid attachment to a revolving shaft, is, for convenience' sake, furnished with a central stem, *a*, which can be inserted and fixed in the end of the shaft. The outer face of the hook is recessed, as seen at *b*, to contain the bobbin.

This recess may be of ordinary or suitable formation, well known to those skilled in the art.

The hook proper is seen at *c*, and the heel or opposite end at *d*. Between the two extremities *c* and *d* the body of the hook is cut away down to, or nearly down to, the central stem *a*, as seen at *e*. Upon the rear side of the hook is formed the inclined surface, which leads to the under-cut groove or notch *f*, which is formed in the body of the hook, and extends radially or thereabout from the center of the stem to the circumference or periphery of the hook. It is in this groove that the portion of the loop that is on the rear of the hook is retained until it is released from the hook.

The position occupied by the loop at various points in the revolution of the hook is indicated in Figs. 3 to 6. The direction of movement is indicated by the arrows. In Fig. 3 the hook is just entering the loop. In Fig. 4 it has moved about a quarter-revolution farther. During this movement the loop has left the hook proper, *c*, and the bottom of the loop has traveled along the face *e*, and reached the center of the hook, at which point, as seen in the figure, the loop has been carried over the face and rear of the hook, and extends diametrically across the hook, with its rear part

g in the undercut retaining-groove *f*. In the next figure (Fig. 5) the hook has moved about a quarter-revolution farther, which has had the effect of bringing the loop to the position indicated, its rear part still retained and held in the groove *f*, while the front part *h* of the loop is about clearing the rounded heel *d* of the hook. In the next position, Fig. 6, the hook has nearly completed its revolution, and is about releasing the loop, which by this time has been turned so as to bring *g* in front and *h* in rear. A slight movement farther of the hook will have the effect of releasing the loop.

My improvements in the bobbin-holder are illustrated in Figs. 7 and 8.

Fig. 7 represents a front view of so much of a sewing-machine as is needed to represent my invention.

A is the cloth-plate; *B*, the upright front plate, which supports the feed and the revolving hook-shaft. To this plate is pivoted, at *i*, the bobbin-holder *C*, which, so far as concerns that part of it designed to fit against and hold the bobbin, may be of the usual or suitable construction. The holder *C* is hung on a horizontal pin or spindle, *j*, supported and adapted to turn in a bearing, *k*, formed on or fixed to plate *B*. This spindle is shown more plainly in Fig. 8, which is a vertical section of the spindle-bearing. This spindle is capable also of endwise movement in the bearing, which movement is in part controlled by a coiled spring, *l*, located in an enlargement, *m*, of the bearing surrounding the spindle, and held compressed between the bottom of the chamber or enlargement *m* and a flange or washer on the inner end of the spindle. The spring, thus arranged, tends to hold the bobbin-holder against the end of the bearing. On the outer end of the bearing is an incline, *n*, and on the contiguous face of the bobbin-holder is a lug, projection, or a corresponding incline, *o*, to work against the incline *n*.

When the bobbin-holder is in front of the bobbin the inclines occupy such relation to one another as to permit the spring to draw the bobbin-holder to the proper position to hold

the bobbin in place. When, on the other hand, the bobbin-holder is moved to uncover the bobbin by and during this movement, it will be caused to recede from the face of the bobbin by the action of the projection or incline *o*, which passes over the face of the incline *n*, and thus produces an outward endwise movement of the spindle, compressing the spring and carrying the bobbin-holder outwardly away from the face of the bobbin.

In this way the bobbin-holder, while arranged to swing upon a pivot, also is enabled to hold and release the bobbin, as in ordinary machines.

Having described my improvements, what I claim, and desire to secure by Letters Patent, is—

1. A bobbin containing hook rigidly mounted upon a revolving shaft, and constructed substantially as herein described, so as to carry the loop over the face and rear of the body of the hook that incloses the bobbin.

2. A bobbin containing hook rigidly mounted upon a revolving shaft, and constructed substantially as described, so that the loop taken from the needle shall be carried by the hook, while in the act of revolution, diametrically across the body of the hook, and held thereon thus diametrically until released by and upon completion of the revolution of the hook, as set forth.

3. The combination, with the rotary hook and bobbin, of a self holding and adjusting bobbin-holder pivoted to the body of the machine, substantially as set forth.

4. A bobbin-holder pivoted to the body of the machine, and combined with mechanism substantially as described, whereby simultaneously with its movement upon its pivot it is caused to move bodily toward or away from the face of the bobbin, substantially as set forth.

In testimony whereof I have hereunto signed my name this 22d day of May, A. D. 1875.

JAS. E. A. GIBBS.

Witnesses:

M. BAILEY,
EWELL A. DICK.