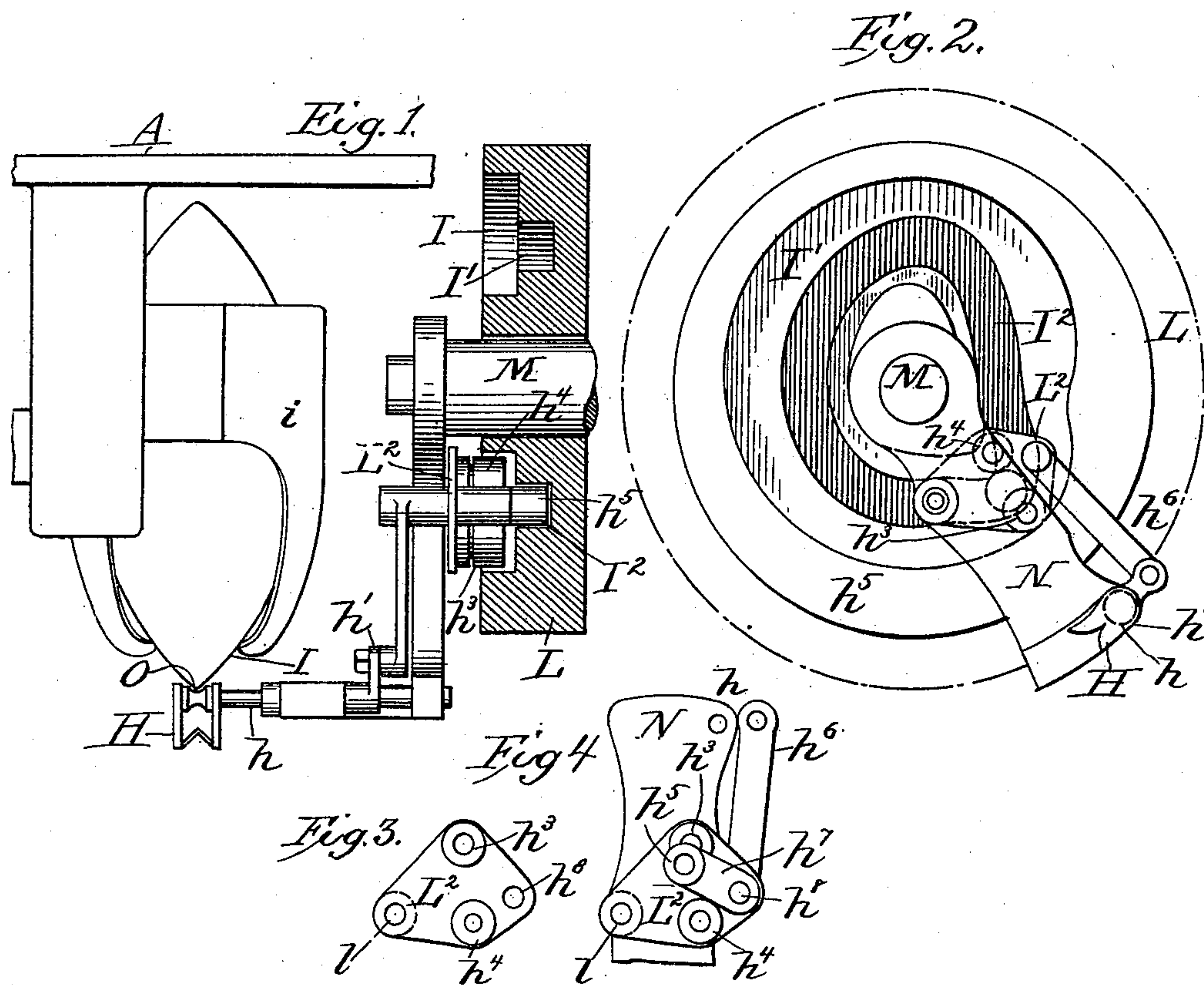


(No Model.)

F. O. JERRAM.  
SEWING MACHINE.

No. 590,683.

Patented Sept. 28, 1897.



Witnesses  
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# UNITED STATES PATENT OFFICE.

FREDERIC O. JERRAM, OF LONDON, ENGLAND.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 590,683, dated September 28, 1897.

Application filed July 13, 1895. Serial No. 555,878. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERIC O. JERRAM, a subject of the Queen of Great Britain, residing at London, in the county of Surrey, in the Kingdom of England, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

This invention relates to certain improvements in sewing-machines, and more especially to that class of machines wherein a rotary looper is employed below the bed of the machine to loop the needle-thread.

The invention will be understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of the rotary looper; Fig. 2, a face view of the same, showing the cams; Fig. 3, a detail view of the plate which carries the groove-rollers, and Fig. 4 a detail view of the cam-groove rollers and links.

Similar letters of reference indicate corresponding parts on all the figures.

The mechanism is designed to be located beneath the bed A, Fig. 1, of any form of sewing-machine wherein an upper and lower thread are employed. The under thread is designed to be carried by an ordinary reel or bobbin in a reel-holder and interlooped with the needle-thread to form the lock-stitch, a loop from the needle-thread being thrown out and seized by the point of a rotary looper, which in the progress of its revolution carries it over and around the reel-holder in which the under thread is contained.

The rotary looper comprises a hook H, having an independent oscillatory movement on its axis *h*, the object of this hook being to seize the loop thrown out by the needle and carry it down and over a circular bobbin-holder I, containing the under thread, the dotted lines, Fig. 2, showing the circular path of the hook. Then on arriving approximately at the bottom of the bobbin-holder hook H will release the loop, which should then be gathered up by any suitable take-up mechanism. The reel-holder I, which contains a reel of thread, is located below the bed-plate of the machine and is made somewhat in the shape of a segment of a circle. The hook H in its circular travel passes in close proximity

to the point of the needle to engage the loop of the upper thread, and as it travels around the reel-holder I it draws the loop over the latter, the loop meantime opening out and widening, it being expanded by the convex sides of the holder. In order to secure to the hook H an independent oscillatory movement on its axis, I mount the hook on the end of the oscillating spindle *h*, having its axis in the revolving carrier N, which is mounted on and revolves with center shaft M.

*h'* is a crank fixed to oscillating spindle *h*; *L*<sup>2</sup>, a swinging frame pivoted at *l* to the revolving carrier-frame N. Two cam-rollers *h*<sup>3</sup> and *h*<sup>4</sup> are mounted on this frame and are constructed to work against the opposite side walls of the cam-groove I' of fixed cam L. *h*<sup>6</sup> is a link which couples the swinging frame *L*<sup>2</sup> and the crank *h'*; *h*<sup>7</sup>, a crank with cam-groove roller *h*<sup>5</sup> on its end, the said crank being mounted on the pivot *h*<sup>8</sup> of the link *h*<sup>6</sup>. This roller *h*<sup>5</sup> is made to run in the inner groove I<sup>2</sup> of the fixed cam L. Grooves I' and I<sup>2</sup> in stationary cam L are constructed so that they work in unison and give an irregular oscillatory movement to the spindle *h*, on which hook H is mounted.

To provide for the passing of the upper thread between the reel-holder I and the sides of its support *i* without friction, a small grooved pulley *o* is mounted on the axis of the hook in such a manner that in the rotation of the hook and pulley around the reel-holder the groove of this pulley comes in contact with and lifts the reel-holder I clear of the support *i*.

The rotary shaft M is driven by any suitable connection with the mechanism for driving the other operative parts of the machine.

The machine being put into operation, the needle descends, passing through and carrying the bight of the thread through the material, forming a loop, which is immediately engaged by the point of the looper-hook. As the needle rises the looper rotates, expanding the loop of the needle-thread and drawing from the reel sufficient thread to form a stitch, the take-up mechanism supplying the length of slack thread and thus enabling the hook to pass the loop of thread over the bobbin-holder.

As the bobbin-holder is located slightly eccentric to the travel of the hook H, the roller O as it approaches the bottom of the holder I



will come in contact with the latter and lift it sufficiently off of its support *i* for the loop to pass to the other side.

The parts are so timed that as the needle begins its descent the hook has oscillated on its axis *h* into such a position, preferably a nearly-horizontal one, that by the combined motion of the carrier *N* and the rollers *h*<sup>3</sup>, *h*<sup>4</sup>, and *h*<sup>5</sup> working in the cam-grooves the loop is cast off. The looper then rises and the point oscillates into such a position that it will take the next loop thrown out by the needle.

I declare that what I claim is—

1. In combination for the purpose of imparting to the looper an independent oscillatory movement on its axis, a rotary carrier *N* in which the axis of the looper is mounted, a fixed cam *L* having two cam-grooves *I'* *I*<sup>2</sup>, a swinging frame *L*<sup>2</sup> pivoted to the carrier and having two cam-rollers mounted thereon adapted to work in the cam-groove *I'*, a crank *h'* with cam-roller mounted thereon

and adapted to work in the cam-groove *I*<sup>2</sup>, and links or arms for coupling the aforesaid swinging frame and crank with a crank on the axis of the looper, substantially as described.

2. In a lock-stitch sewing-machine, the combination of the reel-holder, the rotary looper, and means carried by the looper for lifting the reel-holder from its supports as the looper passes around it.

3. In a lock-stitch sewing-machine, the combination of the reel-holder, the rotary looper eccentric thereto, and means carried by said looper for lifting the reel-holder from its supports as the looper passes around it.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

F. O. JERRAM.

Witnesses:

G. C. DYMOND,  
J. McLACHLAN.