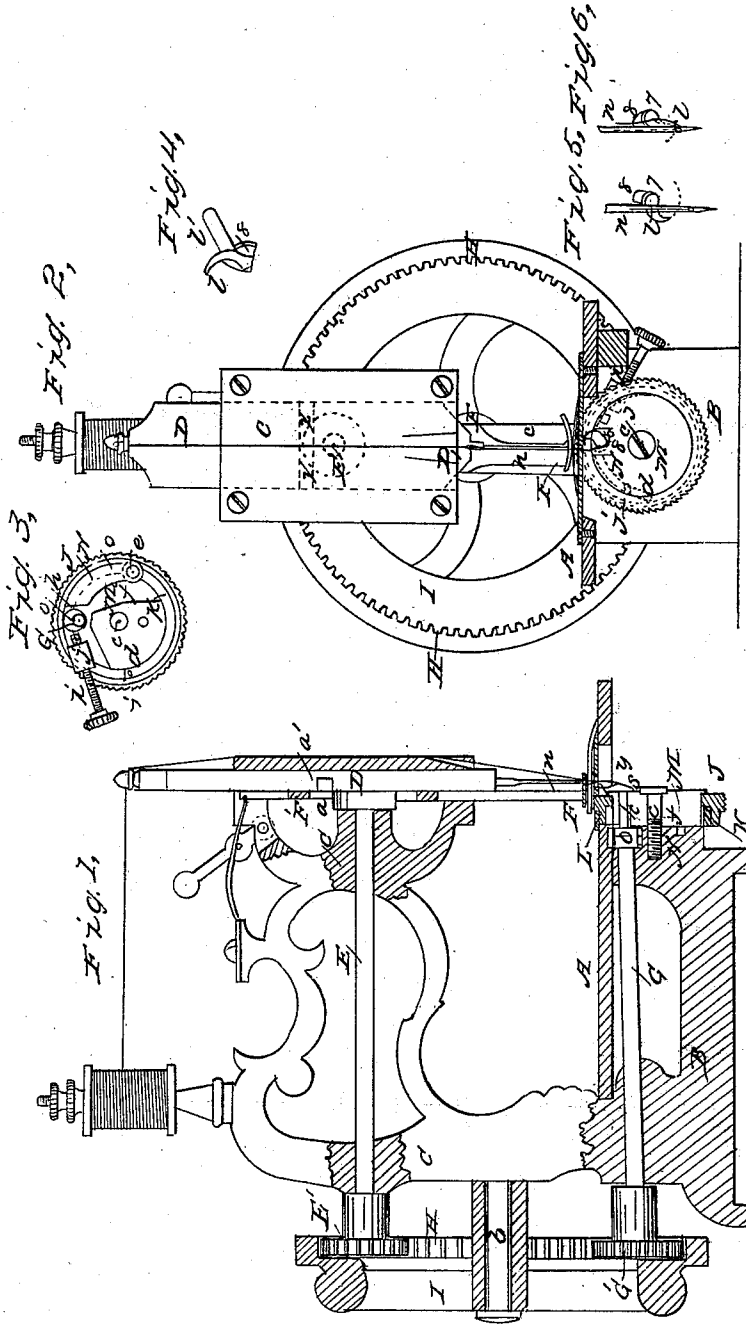


C. HODGKINS.
Sewing Machine.

No. 33,085.

Patented Aug. 20, 1861.



Witness:
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UNITED STATES PATENT OFFICE.

C. HODGKINS, OF MARLBOROUGH, NEW HAMPSHIRE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 33,085, dated August 20, 1861.

To all whom it may concern:

Be it known that I, CHRISTOPHER HODGKINS, of Marlborough, in the county of Cheshire and State of New Hampshire, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a back view, partly in section, of a machine with my improvements. Fig. 2 is a side view of the same with the table in section. Fig. 3 is a view of the inner side of the feeding apparatus. Fig. 4 is a perspective view of the looper larger than its real size. Fig. 5 is a view illustrative of the formation of the stitch.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists, first, in an improved device for operating a rotary feed-ring; secondly, in an improved mode of applying and arranging a rotary looper in connection with an eye-pointed needle to make the chain-stitch.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the bed, secured to a stand, B, to which is also firmly secured or with which is cast the stationary arm C, which, besides containing the guides for the needle-slide D, and for the stem F' of the presser F, contains the bearings for the horizontal needle-operating shaft E, which is arranged some distance above the bed-plate. This shaft E is furnished at the extremity next the needle-slide with a crank, a, which works in a horizontal groove, a', in the said slide, and so gives it the necessary reciprocating movement to carry the needle through and withdraw it from the cloth.

G is both the looper-shaft and the feed-shaft, arranged in suitable bearings in the stand B in a position immediately below the bed A, nearly horizontal and parallel with the shaft E. This shaft is furnished at the end of the machine farthest from the needle and looper with a spur-gear, G', which is precisely similar in the size and number of its teeth with a gear, E', on the needle-operating shaft E, and both of these gears gear with an internally-toothed gear, H, attached to or cast with the fly-wheel or driving-wheel I of the

machine, which is fitted to rotate freely upon a fixed stud, b, secured in the stationary arm C, and which drives the two shafts E and G at the same speed. By having the teeth on the interior of the driving-gear H, I am enabled to make that gear of large size to drive the machine at a high speed, and yet keep the machine within a very small compass as compared with what would be necessary if the same speed were obtained from an externally-toothed driving-gear.

J is the feed-ring, fitted to rotate around a flanged circular block, M, which is secured firmly to the stand B by a screw, c.

K L are two nearly semicircular arcs, fitted to the interior of the ring J. These arcs are connected together by a pin-joint, d, on one side of the ring, and on the opposite side thereof the arc K has pivoted to it by a fulcrum-pin, e, a small curved lever, N, on which is a cam, f, which works against the face g of the corresponding end of the other arc. By forcing the free end h of this lever outward from the center of the ring the arcs are both crowded outward so tightly against the interior of the ring that they cannot turn within it, and by a continued pressure against the said end h the lever, the jointed arcs, and the ring J are all caused to turn together on the block M. This action of the lever to turn the ring for feeding the cloth is effected by means of the cam O on the shaft G, and the arcs K L are moved back within the ring, preparatory to the repetition of the feed movement, by the action of the said cam against the point of the screw i, which is screwed through a protuberance, j, on the inner side of the arc L. No obstacle is offered to this reverse movement of the arcs, as the lever N, when not pressed by the cam, tends by its own weight to free the arcs from the ring, which is prevented from moving back, both by the action of the presser and by its own friction, upon its supporting-block M. The length of the feed is regulated by turning the screw i, as that regulates the position to which the arcs K L move in a backward direction, their forward movement being always to the same position. This feed mechanism is complete without any spring, and therefore less likely to get out of order than most of the friction-feeds.

l is the rotary looper, having a straight stem, l', which is inserted in the end of the

shaft G and secured therein by a set-screw or other means. This stem passes through the block M, and consequently through the feed-ring J. The said looper consists of a simple hook, with a rounded heel, 7, concentric with the stem and shaft, and with a guard, 8, protruding from the heel on the side opposite to the point of the looper, said guard being for the prevention of the loop from getting round the stem. This looper is very small as compared with other rotary loopers for making the chain-stitch, in order that its point may not in its revolution pass near so low as the lowest point reached by the eye of a needle of ordinary or less than ordinary length, as is illustrated in Fig. 5, in which the needle *n* is represented in its lowest position and the path of the point of the looper is represented by a dotted line. This looper enters the loop when its point is directly or almost directly below its axis of rotation, and not when it is above, as is the case with other rotary loopers. This action is illustrated in Fig. 6, which represents the needle in the act of rising and the looper in the act of entering the loop. As the ascent of the needle and rotation of the looper continue the loop is extended by the looper and gradually drawn round the heel 7 thereof, which keeps it extended as long as necessary and then lets it slip off and be drawn up through the cloth by the needle. By constructing, applying, and operating the looper to take the loop near the lowest position of its point, and

thus enabling it to be made of very small size, less thread is taken through the cloth to form the stitch and there is less to draw back again.

In order to allow the point of the looper to work closer to the needle when it passes it above the axis, and thereby to insure its taking the loop in the lower position and prevent it from interfering with the needle in its higher position, the shaft G has the slight upward inclination toward the needle, shown in Fig. 1.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the jointed arcs K L, fitted between the feed-ring J and its supporting-block M, the lever N and its cam *f*, and the screw *i*, the whole arranged substantially as described in relation to each other and to the cam O on the feed-shaft G, and operating as set forth.

2. So arranging and applying the rotary looper in combination with an eye-pointed needle for making the chain-stitch that the point of the looper enters the loop of the needle-thread while below the axis of rotation of the looper, substantially as herein described, or, in other words, while on the opposite side of said axis to that on which the cloth is situated.

C. HODGKINS.

Witnesses:

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