

(No Model.)

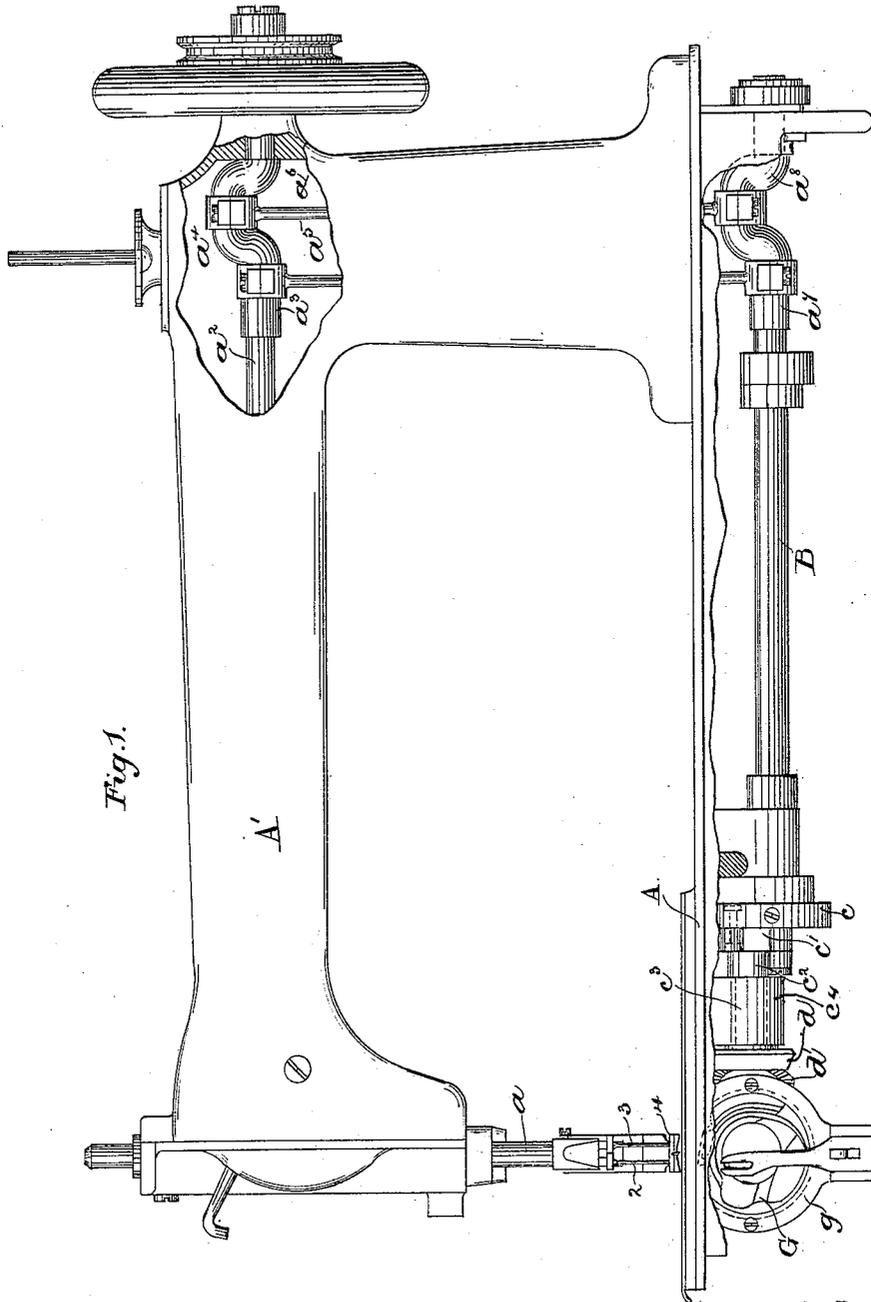
2 Sheets—Sheet 1.

W. A. NEELY.

LOOP TAKING APPARATUS FOR SEWING MACHINES.

No. 419,541.

Patented Jan. 14, 1890.



Witnesses:

Fred. S. Greenleaf
Frederick L. Emery

Inventor:

William A. Neely
By Leroy Sigouy atty.

(No Model.)

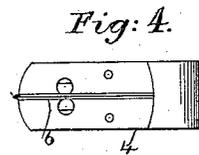
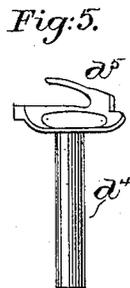
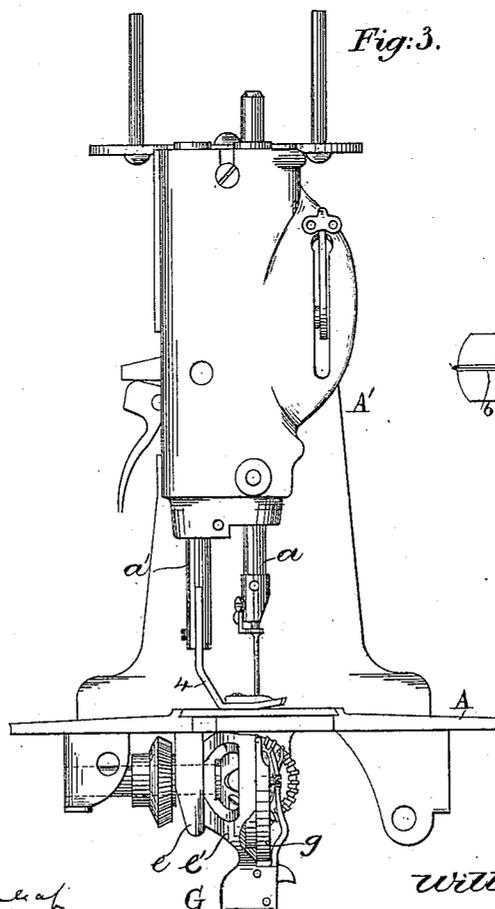
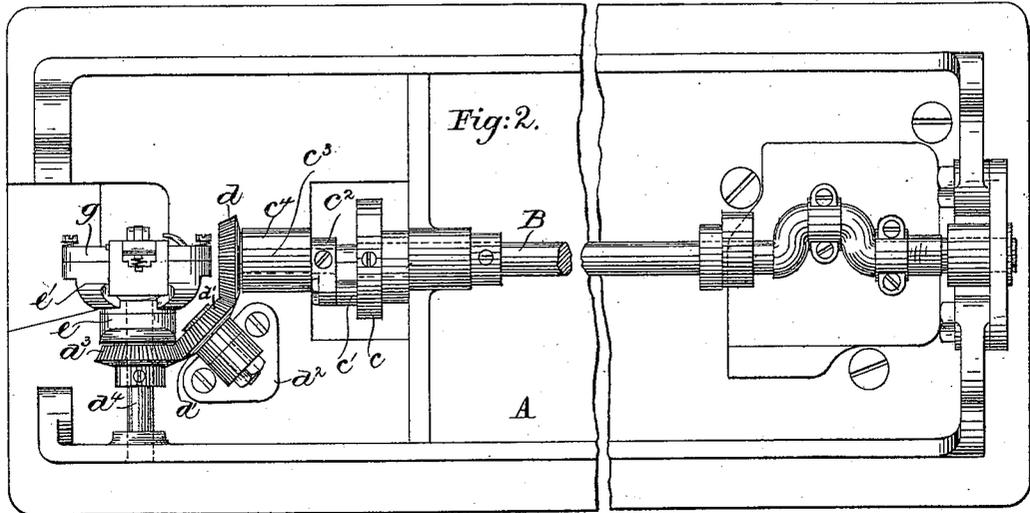
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UNITED STATES PATENT OFFICE.

WILLIAM A. NEELY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE WHEELER & WILSON MANUFACTURING COMPANY, OF BRIDGEPORT, CONNECTICUT.

LOOP-TAKING APPARATUS FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 419,541, dated January 14, 1890.

Application filed November 1, 1888. Serial No. 289,765. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. NEELY, of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a sewing-machine containing a loop-taker which rotates in a vertical plane at right angles or transverse to the line of sewing, whereby the loop-taker of the said machine is adapted to enter loops of thread formed through the material in different horizontal planes transverse to the bed-plate.

The machine herein to be described embodying my invention is represented as having two needles, the loop-taker entering the loops of thread thrown out by both of the needles at the under side of the material.

In my improved machine the needle-bar derives its movement of reciprocation from a rotating shaft in the overhanging arm of the machine, the said shaft having a crank and being connected by a link or links with a shaft parallel with it, but located below the bed-plate, the said shaft, by a link and crank-pins, rotating a short shaft mounted in bearings eccentric to the shaft which is connected with the needle-bar-operating shaft, the said short shaft having a beveled gear, which, through an intermediate beveled gear, engages a beveled gear on and rotates a driver-shaft at right angles to the said short shaft, the said driver-shaft having a driver which engages and moves a loop-taker, which takes the loop of needle-thread and passes it about a bobbin containing an under thread.

My invention in sewing-machines consists, essentially, of a needle-bar, a needle carried thereby, a rotating shaft to actuate the needle-bar, an under shaft, a link connecting it with the needle-bar-actuating shaft, a short shaft, and means between the short shaft and the said under shaft to actuate the short shaft at a variable speed, combined with a driver-shaft at right angles to the said short shaft, gearing between the said driver-shaft and short shaft to actuate the driver-shaft,

and a loop-taker rotating in a vertical plane at right angles or transverse to the direction of the seam, substantially as will be described; also, in a sewing-machine, a needle-bar, two eye-pointed thread-carrying needles, means to actuate the needle-bar, combined with a loop-taker guide, a loop-taker rotating therein in a vertical plane at right angles or transverse to the line of the seam, and with means to rotate the said loop-taker at a variable speed, substantially as will be described.

Figure 1 is a side elevation, partially broken out, of a sewing-machine embodying my invention. Fig. 2 is an under side view of the machine shown in Fig. 1. Fig. 3 is a front end view of the machine shown in Fig. 1, the feed-bar being omitted from all the drawings. Fig. 4 is an under side view of the presser-foot, and Fig. 5 shows the driver-shaft and driver alone.

The bed-plate A, the overhanging arm A', having at its front end bearings for the needle-bar *a* and for the presser-foot bar *a'*, the main rotating shaft *a²* for operating the needle-bar, the said shaft having two cranks, as *a³* *a⁴*, the two links *a⁵* *a⁶*, connecting the said cranks with the cranks *a⁷* *a⁸* on the under shaft B, are all common to what is known as the "Wheeler & Wilson No. 12 machine," the under shaft B being rotated from the upper shaft *a²*. The under shaft B at its end farthest from the cranks has a disk *c*, provided with a crank-pin which receives a link *c'*, the opposite end of which is connected with a crank-pin of a crank *c²*, attached to the short shaft *c³*, (shown by dotted lines as rotating in a bearing *c⁴*), the axis of the short shaft *c³* being out of line or eccentric to the axis of the under shaft B, the short shaft *c³* being rotated by the under shaft B at a variable speed due to the said link, as is well understood in the Wheeler & Wilson form of sewing-machine. The short shaft *c³* has a beveled pinion *d*, which engages an intermediate beveled wheel *d'*, mounted on a stud of a plate *d²*, (shown as secured to the under side of the bed-plate,) the said intermediate beveled gear engaging a beveled gear *d³* fast on a driver-shaft *d⁴*, provided at its front end

with a driver d^5 . (Shown in Fig. 5.) This driver-shaft d^4 has its bearings in a lug e , extending from the under side of the bed-plate, and to which lug is secured the raceway e' , in which rotates a loop-taker G, the said loop-taker being substantially the same in shape, construction, and operation as the loop-taker designated by like letter in United States Patent No. 328,165. The loop-taker is retained in the raceway by means of a cover-plate g , which may be held in place in any usual manner.

The needle-bar a is herein shown as provided with two eye-pointed thread-carrying needles 2 3, each supplied in practice with thread from suitable spools, the thread between the spools and the eyes of the needles being acted upon by any usual tension devices and take-up devices.

The presser-foot 4, secured to the presser-bar in usual manner, has two needle-holes, one for each needle, and the under side of the presser-foot has a longitudinally-projecting flange or keel 6, which is especially adapted to enter a seam which has been previously made—as, for instance, the closing seam of the quarter of a boot or shoe.

In the manufacture of boots and shoes, after the quarters have been closed with their faces together the quarters are spread out flat and two other rows of stitching are made parallel with the closing-seam, so as to catch the edges of each quarter beyond the closing-seam to itself at one side of the closing-seam. To enable this class of work to be done on a Wheeler & Wilson machine, I have arranged the loop-taker as described and shown, so that it rotates at a variable speed in a vertical plane at right angles or transverse to the line of the seam or to the direction of the feeding movement of the material being stitched, the point of the loop-taker entering one loop after the other of the two needles at each descent of the needle-bar.

The machine herein described may be made to sew parallel seams, the needle-thread of the two seams being connected at the under side of the material by a thread taken from a single bobbin. If, however, it be de-

sired to use the machine for ordinary work, one needle may be omitted, as the variably-rotating loop-taker arranged at right angles or transverse to the seam is adapted to work equally well with either one or two needles.

I have omitted from the drawings the feed and the tension mechanism, so as to avoid confusion of the drawings; but in practice the feed-actuating mechanism and tension mechanism may be of any form common to sewing-machines or as in the said patent.

I do not desire to limit my invention to the exact form of connections between the two shafts A² and B, as instead of these I may employ any other well-known devices by which to rotate one shaft from another. I do not claim the two cranks and their connections.

I claim—

1. In a sewing-machine, a needle-bar, a needle carried thereby, a rotating shaft to actuate the needle-bar, an under shaft B, a link connecting it with the needle-bar-actuating shaft, the short shaft c^3 , and means between the short shaft and the said under shaft to actuate the short shaft at a variable speed, combined with the driver-shaft at right angles to the said short shaft, gearing between the said driver-shaft and short shaft to rotate the driver-shaft, and a loop-taker rotating in a vertical plane at right angles or transverse to the direction of the seam, substantially as described.

2. In a sewing-machine, a needle-bar, two eye-pointed thread-carrying needles, means to actuate the needle-bar, combined with a loop-taker guide, a loop-taker rotating therein in a vertical plane at right angles or transverse to the line of the seam, and with means to rotate the said loop-taker at a variable speed, substantially as described.

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

WILLIAM A. NEELY.

Witnesses:

BERNICE J. NOYES,
B. DEWAR.