3 Sheets--Sheet 1.

J. A. DAVIS.

Sewing-Machines.

No. 138,996. Patented May 20, 1873.

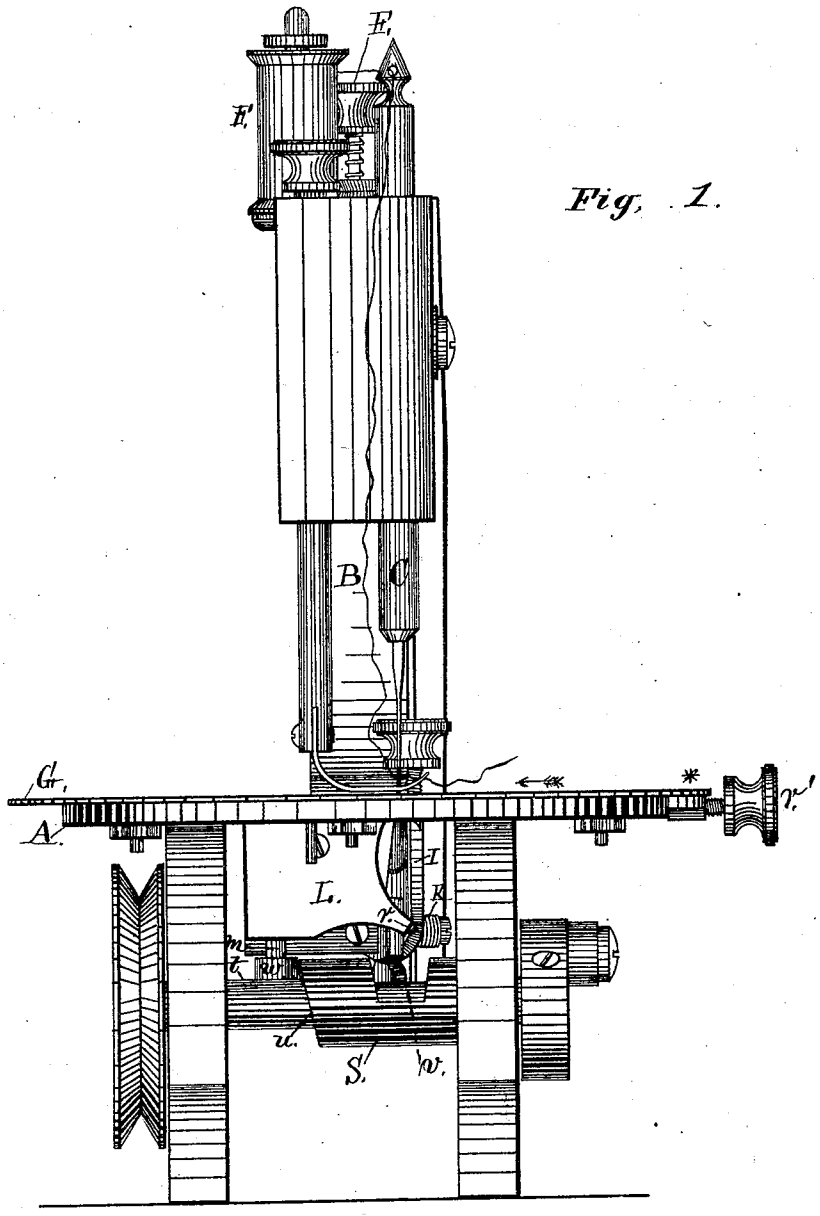

Fig. 1.

Witnesses

W. R. Holden.

Jarvis Moulden

Inventor,

John A. Davis

by John J. Halsted

his Atty.

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J. A. DAVIS.

Sewing-Machines.

No. 138,996. Patented May 20, 1873.

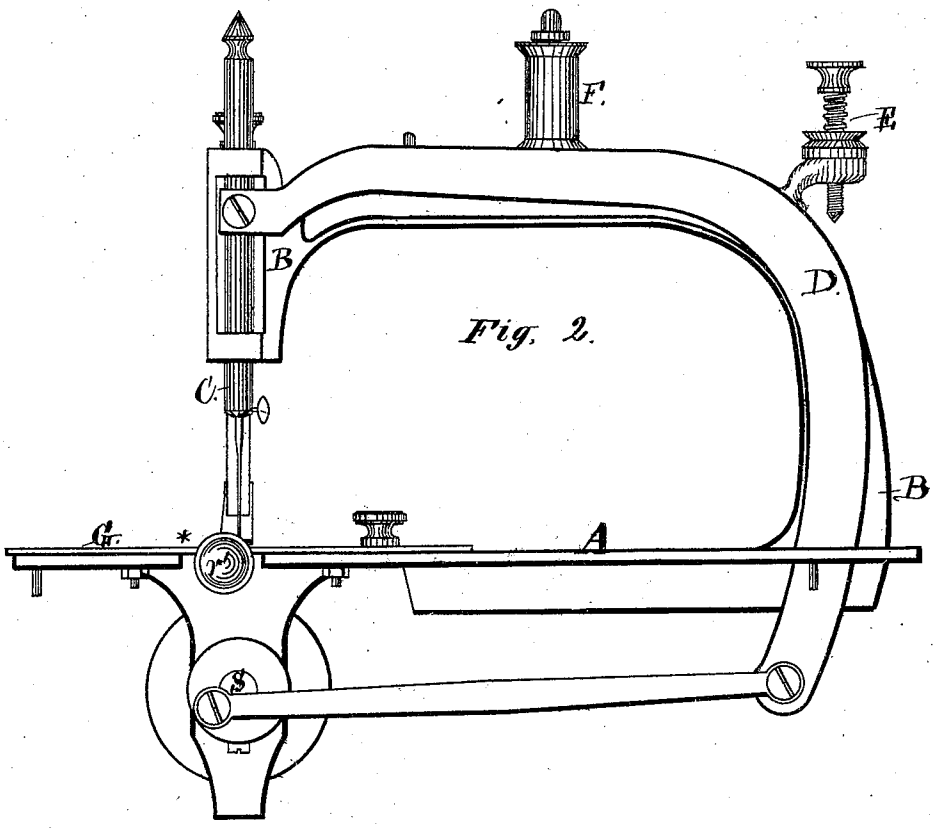

Fig. 2.

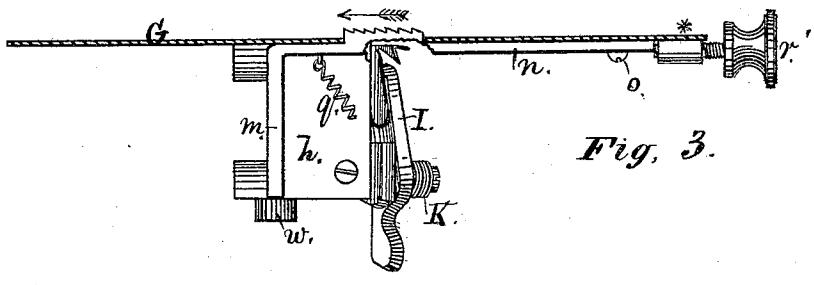

Fig. 3.

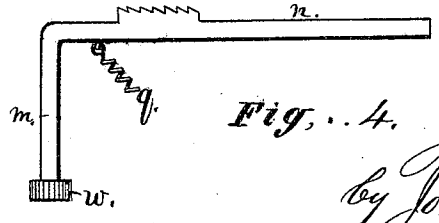

Fig. 4.

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J. A. DAVIS.

Sewing-Machines.

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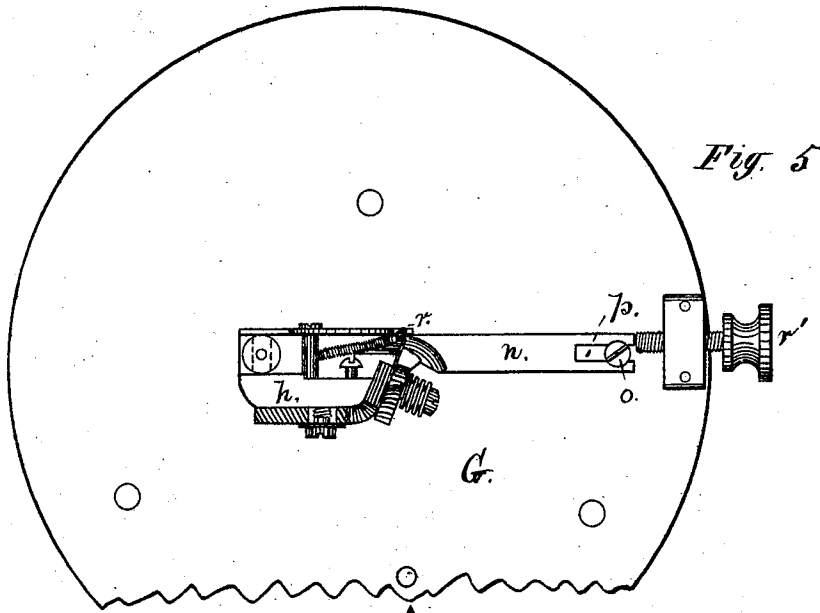
Fig. 5



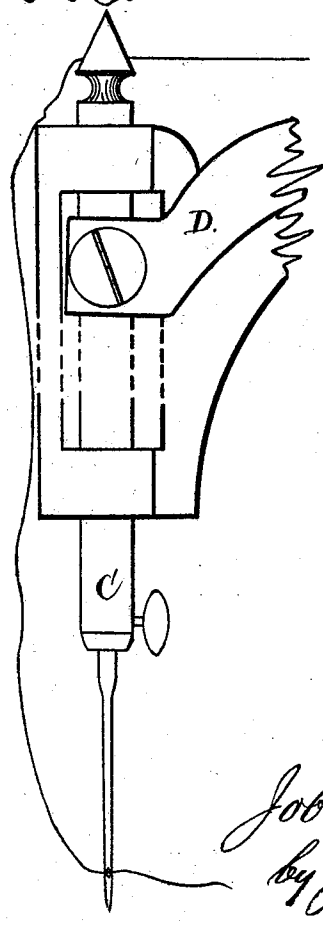


Fig. 6.

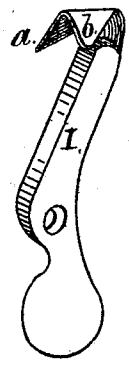


Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

JOB A. DAVIS, OF BRATTLEBOROUGH, VERMONT.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **138,996**, dated May 20, 1873; application filed March 10, 1873.

To all whom it may concern:

Be it known that I, JOB A. DAVIS, of Brattleborough, in the State of Vermont, have invented certain Improvements in Sewing-Machines; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

Figure 1 is a vertical end view of the machine; Fig. 2, a side elevation; Fig. 3, a vertical section of the cloth-plate and the working parts attached thereto; Fig. 4, the feed-dog detached; Fig. 5, the under side of the cloth-plate and its attachments; Fig. 6 shows the course of the thread to and through the eye of the needle; Fig. 7, the looper detached.

A is the bed-plate or frame; B, the bracket-arm for supporting the needle-bar C and the vibrating lever D, which actuates it; and E, a tension device for the thread drawn from a spool, F. These parts require no special description. G is a cloth-plate removably screwed to the bed A, and from its under side depends a hanger, *h*, to which is secured the pivoted looper I and its spring K, and the plate L, which serves to form a guide-plate, between which and the adjacent vertical face of the hanger *h* the vertical portion *m* of the feeding device plays; the horizontal portion *n* of such device lying against the under side of the cloth-plate, and being held thereto by a single set-screw, *o*, which is spanned by a yoke or slot, *p*, at the end of such part *n*. A spring, *q*, connects the feed-dog diagonally to the plate *h* at *r*, so as to cause it to react backward and downward after it has been fed upward and forward, and a set-screw, *r'*, serves to regulate the extent of feed. S is the main shaft, being constructed entire, with all its cams in a single piece; it being so cut away from its original size or diameter as to furnish, integral with the shaft itself, not only the cams *t* and *u* for lifting and feeding forward the feed-dog *m*, but also the cam or eccentric swell *v* for actuating the looper. There is great economy in this mode of making the shaft and cams all in one, and it avoids the possibility of the cams loosening or shifting position. The lower end of the part *m* of the feed-dog lies directly above the main shaft, so that the axes of both are practically in the same vertical plane, and it is furnished with a friction-roller, *w*, the better to ease the movements. The line of feed, when the machine is in operation, is in the direction of the arrow, and, as will be seen, in practically the same vertical plane as the shaft and the path of the feed-dog. The looper is formed, as shown, with a tip, *a*, and a projection, *b*, in order to enter, hold, twist, and spread the loop, and is adjustable. It vibrates on a center in a path transverse or across the vertical plane of the line of stitching, and also across the vertical plane of the axis of the main shaft. In this connection it may also be named that the thread from the spool, in passing through the eye of the needle, enters the eye at that side of the needle which is nearest the presser-bar, and emerges at the side which is further from the presser-bar and nearest to the operator, who should sit at that side of the machine marked with the *—that is, with the needle between her and the presser-bar. The looper takes and holds its loop behind the stitch last made—that is, between such stitch and the operator, the feed being from the operator. The direction of the feed being that designated by the arrow, and the needle being threaded as just described, the looper, when brought into action to take the loop, does so on that side of the needle which is nearest the operator, and its tip enters the loop between the eye of the needle and the stitch last made in the cloth; and such stitch is in this machine on one side of the needle, while the loop is taken on its opposite side. The projection *b* of the looper carries one-half of the loop of thread across the line of seam, and holds it; the other half rolls along the under side of the looper and remains at rest on the opposite side, and in this condition, or twisted, the needle descends through the opened loop, and the loop, when drawn taut, is crossed on itself. The looper, in its movements, neither turns on its longitudinal axis nor swerves out of its direct reciprocating path in order to take and spread and discharge the loop. It will be seen from the description that the main object in my peculiar construc-

tion is to get the twist in the loop without using a rotary looper heretofore used for this purpose, and which, by reason of its rotary motion, is apt to coil and wind the thread around it—a serious difficulty, and one entirely avoided by me. Loopers which take their loop in a direction of the line of the seam cannot properly spread it so as to have it thrown to the opposite side of the line of the seam—that is, opposite the looper—without having some special device as a hook or its equivalent to carry the loop to the proper position, so that the needle can enter it. The attachment to the removable bed-plate of the feed, looper, &c., is a matter not only of great convenience, but also of economy, as it avoids the need of that very nice precision of milling and fitting to the main bed-plate which is necessary when these parts are as usual attached to it.

I claim—

1. In a chain-stitch sewing-machine, a vibrating looper, constructed substantially as described, moving in a path transverse or across the plane of the line of stitching, and operating in connection with the needle and feed to give to the loop a twist, substantially as and for the purpose described.

2. The combination, with the removable cloth-plate, of the stitch-making devices, substantially as described, employed beneath the table, so that the removal of such plate shall carry with it such devices without the need of deranging or loosening them.

JOB A. DAVIS.

Witnesses:
JOHN J. HALSTED,
JARVIS MOULDEN.