

UNITED STATES PATENT OFFICE.

JAMES DAVIS, OF FAYETTEVILLE, NORTH CAROLINA.

IMPROVED SEWING-MACHINE STITCH.

Specification forming part of Letters Patent No. 27,620, dated March 27, 1860.

To all whom it may concern:

Be it known that I, JAMES DAVIS, of Fayetteville, county of Cumberland, and State of North Carolina, have invented a new and Improved Sewing-Machine Stitch; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a bottom or under side view; Fig. 2, a vertical section of the table in its upright position, through the line *xx*, Fig. 1; and Fig. 3, a delineation of the stitch and manner of its formation.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, the same letters referring to like parts in all the figures.

E represents the table; D, the main shaft operated by the crank-wheel H, and is supported beneath the table by bearings F F. A A are cam-wheels near the extremities of said shaft, and operated thereby. *bb* are the shafts of looping-bars *m m*, operated by means of the cogged wheels *ll* gearing into *dd*, cogged segments upon the cam-wheel A A. B B B B are bearings for the shafts *bb*. *xx* are the shuttle-ways on which the shuttle slides back and forth. I is the shuttle; *c*, the movable or flexible horns at the ends of the shuttle; S, the spring pressing the looper-shafts against the cams; *b'*, the shuttle-thread; *m'*, the needle-thread; K, the needle-slide; *y*, the needle-hole in the table; *n*, the needle; *a a*, grooves in bent portions of loopers.

The needle and needle-slide are shown in the drawings, Fig. 2, but none of the parts or devices by which they are operated or driven, as I use the device in common use for those purposes. Neither have I represented the devices for driving the shuttle, as I use those which are applied to other sewing-machines.

Having thus described the several parts of my improved sewing-machine, I will proceed to illustrate its operation.

The cogged wheel *l*, traversing the cam A in its revolution, is thrown forward into gear with the cogged segment *d*, thus projecting *m* beyond the needle-hole to the position indicated in red, Fig. 1. The looper receiving a rotary action through said gearing when the looper is in its forward stroke in its revolution, it

takes up the shuttle-thread *b'*, as represented in red, Fig. 1, and having completed one revolution is then by the action of spring S forced back, so that its bent end is in a vertical position directly beneath the needle-hole. The pinion having at this stage left the segment, and its end having passed the first incline, the thread *b'* has now slipped over the bend of the looper, thereby forming a loop, which is still retained by the point of the looper. The needle now descends through this loop, passing along the groove *a* in the bent portion of looper down to its full stroke. The needle then receding a short distance, slackens the needle-thread sufficiently to admit the passage of the shuttle, when it remains stationary until the shuttle has passed through to its rear horn. The needle at this point recedes up through the cloth, leaving its loop around said horn. These horns, to which I have referred, on the ends of the shuttle, are represented in Figs. 1 and 2 at *cc*, and are flat pieces of metal rounded at one end, the other ends being pivoted to the shuttle. The rounded portions project beyond the points of the shuttle for the needle-loop to be drawn around. These horns have at their free ends an up-and-down or vertical motion for the purpose of discharging the needle-loop therefrom at a point nearer to the cloth than could be done with an ordinary rigid shuttle. At the stage of the formation of the stitch, when the needle has receded up through the cloth, leaving its loop around the shuttle-horn, as before described, the needle-thread is drawn up tightly around said horn by a device used in common by other sewing-machines, and which is not given in the drawings. By means of the horn before described, in connection with the drawing up of the needle-thread, the stitch is not only made tight and firm in the cloth, but the shuttle-thread is drawn tightly around the needle-loop, while the needle-loop is held by said horn, the tightening of said shuttle-thread preventing the formation of a slip-knot or a slip-stitch. The shuttle now slides, being carried forward still farther. Its rear horn slips from the needle-loop when the needle-thread is drawn up, thus tightening the knot and drawing it up into the cloth, the needle-thread being drawn up by the devices before mentioned, and common to other sewing-machines.

This machine, above described, makes a

stitch in the forward and also in the backward stroke of the shuttle. Thus there is need of two loopers, as one looper is used when the shuttle is on one side, and the other looper is used when the shuttle is on the other side, the operation of only one looper being required to form each stitch or knot. Hence the loopers alternate, as described.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

The formation of the knot-stitch, as represented in Fig. 3, substantially as described.

JAMES DAVIS.

Witnesses:

JOHN S. HOLLINGSHEAD,

J. M. MANKIN.