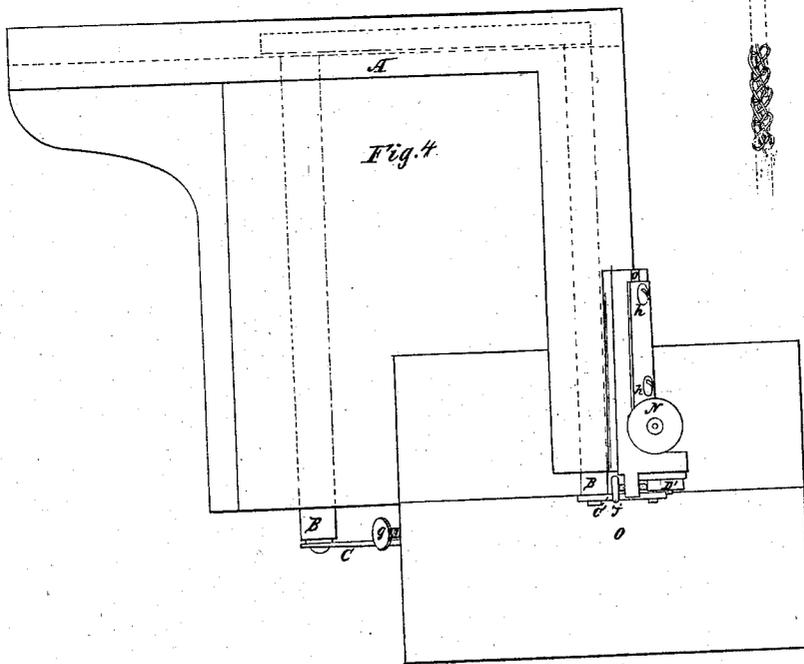
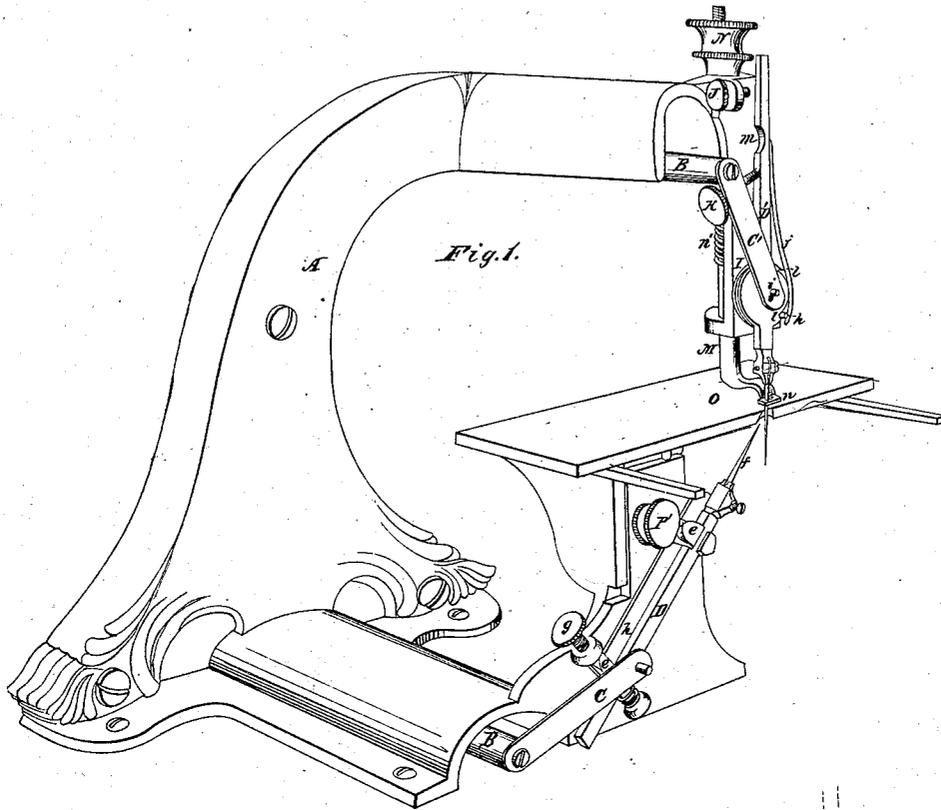


O. AVERY.  
SEWING MACHINE.

No. 10,880.

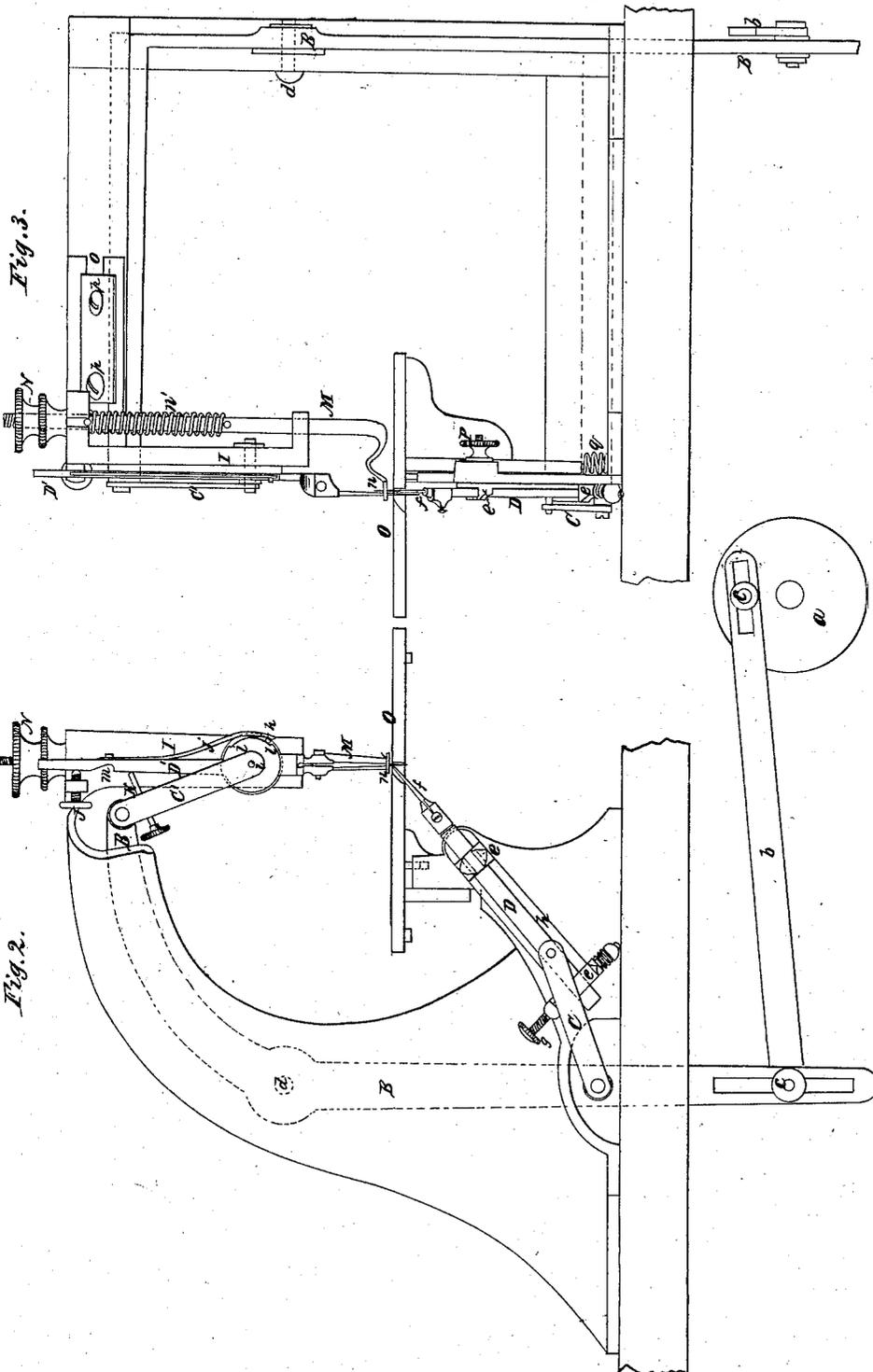
Patented May 9, 1854.



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# UNITED STATES PATENT OFFICE.

OTIS AVERY, OF HONESDALE, PENNSYLVANIA.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 10,880, dated May 9, 1854.

*To all whom it may concern:*

Be it known that I, OTIS AVERY, of Honesdale, in the county of Wayne and State of Pennsylvania, have invented certain new and useful Improvements in Sewing-Machines; 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, making a part thereof, in which—

Figure 1 represents a perspective view of the machine detached from the table. Fig. 2 represents a view from one of the sides. Fig. 3 represents a view from the front of the machine, and Fig. 4 a top view.

Similar letters in the several figures denote like parts.

The nature of my invention relates to the so hanging of the upper needle-bar as that it may be turned up or swung around for the removing of the cloth or any other purpose, and to the individual and combined adjustment of the needles for the double purpose of regulating the relative positions of the needles to each other and their working positions with regard to the material to be sewed; also, the so arranging of an adjustable table or support for the cloth with regard to two needles which have a fixed center, at which the stitch is formed, so that by raising or lowering said table the stitch may be thrown to one side or the other of the cloth or in the center thereof, as may be desired.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The frame A of the machine is cast hollow, to receive the lever B, which drives the needle-bars, said lever being pivoted at *d* and vibrated by the connecting-rod *b*, passing from the lever to the pulley *a*, and connected to each by the set-screws *c c*, passing through slots in both the lever and pulley, for the purpose of adjusting the motion of the lever, and also the point at which the needles shall cross each other to insure the taking up of each other's thread.

The lower needle-bar, D, moves in guides *e*, and is connected to the lever B by a bar, C, and receives its reciprocating motion from the rocking or oscillation of said lever B through said connection. The needle *f* of the needle-bar D passes up through the cloth obliquely,

as seen in Figs. 1, 2, and is made adjustable by the set-screw *g*, which works against a plate, *h*, on which the needle-bar guides *e* are placed. This adjustment regulates the needle in the direction of the seam to be sewed. A second adjustment of the needle is necessary in a line at right angles to that just described, for the purpose of bringing the needle in the lower bar nearer to or farther from the upper one, so that in changing the needles from coarser to finer ones, or vice versa, they may still work sufficiently close to each other to insure the interlocking of their threads, without, however, striking against each other.

At or about an equal distance from the pivot *d* of the lever from where the lower needle-bar is connected and operated, so as to give uniformity of motion to both needles, is attached the upper connecting-bar, C', by one of its ends, the other end being connected to the upper needle-bar, D'. The upper needle-bar, D', is pivoted on the pin *i*, which moves in a slot in the face-plate I, and said bar is controlled or held in its vertical position by means of the spring *j*, bearing against the pin *k*, which said pin, also, by means of the shoulders *ll* on the swelled portion of the needle-bar, prevents said bar from being turned too far when turning from or toward its proper position when sewing. A notch, *m*, is cut near the top of the needle-bar, into which a set-screw, J, on the face-plate I works, for the purpose of allowing the upper needle to move with the lower one a short distance at the time when said upper needle is about catching or passing through the loop of the lower needle. By this method I can pass one of the needles—viz., the upper one—straight through the cloth, and yet enable each needle to catch the loop of the other one. Besides, no momentary rest is given to either of the needles to allow its fellow to catch up its thread, as this is done while the needles are both in motion. Among the benefits of this contrivance may be mentioned the continuous motion of the machine, one part not required to stop for the motion of another part, the working of both needles by the simple oscillation of one lever, instead of by a cam motion. A set-screw, K, is placed in the connecting-bar C', against which the needle-bar strikes as it goes down through the cloth, and which throws the top of the needle-bar to the right, and the needle in its lower end to the left or opposite direc-

tion. This throw of the needle or needle-bar feeds or pushes along the cloth or other material to be sewed as the needle remains in it, and when the needle rises out of the cloth the spring *j* throws it back again in its upright position for the next switch. The quantity of feed is regulated by the set-screw *K*, which regulates the throw of the needle. The needle-bar *D'* is hung on a pin, *i*, as before mentioned, and on said pin may be turned up so as to lie in a position at right angles to that in which it works. This is essential in arranging, removing, or replacing the cloth. The cloth-holder *M* has a foot, *n*, on its lower end, through a slot in which the needles work. Its upper end is provided with a set-screw, *N*, to adjust it to the variable thicknesses of material to be sewed, and a coiled spring, *n'*, allows it to be drawn up, turned out of the way, and again replaced for any of the purposes of arranging or changing the material sewed.

The face-plate *I* is made adjustable on the frame *A* by means of the slot *o* and screws *p*, or by any other device, for the purpose of moving out or in the needle and its several appendages, so as to cause it to work close up to the lower needle. This adjustment of the needles to each other is very essential when fine needles are substituted for coarse ones, or vice versa, as they must at all times work close up to each other to catch each other's threads. The set-screw *P*, Fig. 3, operates against the upper part of the plate *h*, and as this plate *h* holds the needle-bar *D* by means of the guides *e e*, as before described, it brings the needle *f* nearer to or farther from the upper needle, so that one or both needles may be adjusted in this particular. The cloth-table *O* is supported on a spring, *g*, and when in proper position is held by the set-screw *P'*. This adjustable table is important in bringing the cloth or other material in such position with regard to the line of the stitch as may be required—as, for instance, assuming that the stitch, or, rather, its interlocking, is in the precise line of the crossing of the two needles, now, when the middle of the material to be sewed is on that precise line, the stitch or interlocking will be

in the middle of the cloth, showing a back stitch similar in appearance on both sides. By raising or lowering the table and the cloth upon it, the crossing of the needles remaining the same, the interlocking or stitch will be below or above the center of the cloth, and consequently show a different stitch in appearance on each side of the material. The stitch, however, is always the same, and in whatever part of the cloth it may be, whether in the middle, top, or bottom, it is the same really, and consists of a lock both above and below what might be called the "fell" or sewing-point; and it is believed that this stitch is different from any heretofore used in this essential: that it locks on both sides of the cloth or on both sides of the sewing-point.

The words "upper" and "lower" needles have been used. It is obvious that the needles may be worked in a horizontal plane, which would then render these terms inappropriate, but not vary the nature of the machine.

Having thus fully described the nature of my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The so arranging of the upper needle-bar on a pivot, and controlling it by a spring or its equivalent, as that it may be swung around to remove or replace the cloth or other material to be sewed, substantially as described.
2. The arrangement and combined adjustment of the two needles, for the purpose of regulating the relative position of said needles to each other and their joint positions in relation to the material to be sewed, substantially in the manner described.
3. The so arranging of an adjustable table or support for the cloth with regard to two needles which have a fixed center at which the stitch is formed as that, by raising or lowering said table or the cloth, the stitch may be thrown to one side or the other or in the center thereof, substantially as described.

OTIS AVERY.

Witnesses:

FRANCIS H. UPTON,  
CHARLES NETTLETON.