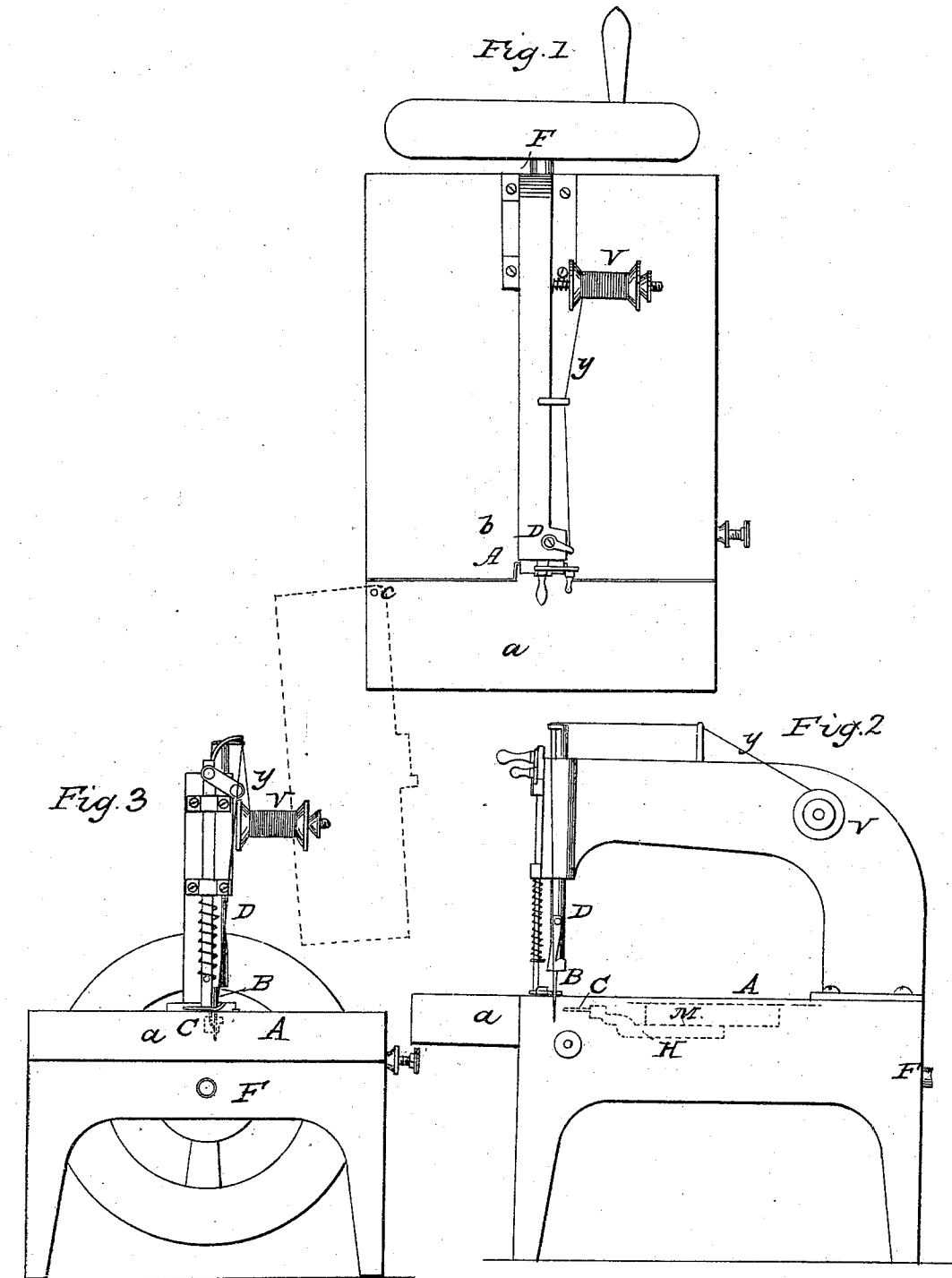


G. A. LEIGHTON.  
Sewing Machine.

2 Sheets—Sheet 1.

No. 11,284.

Patented July 11, 1854.



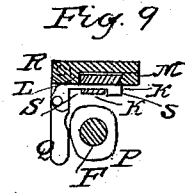
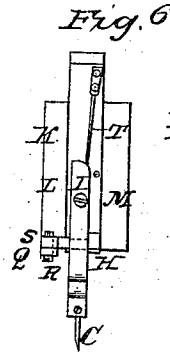
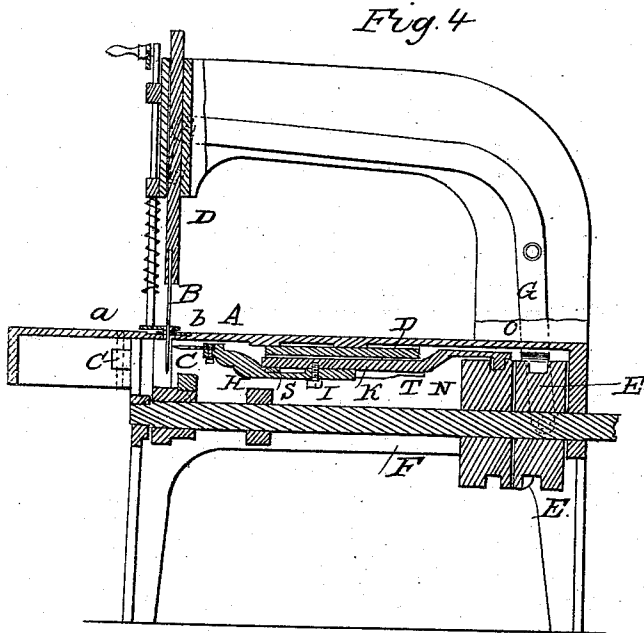


Fig. 5.

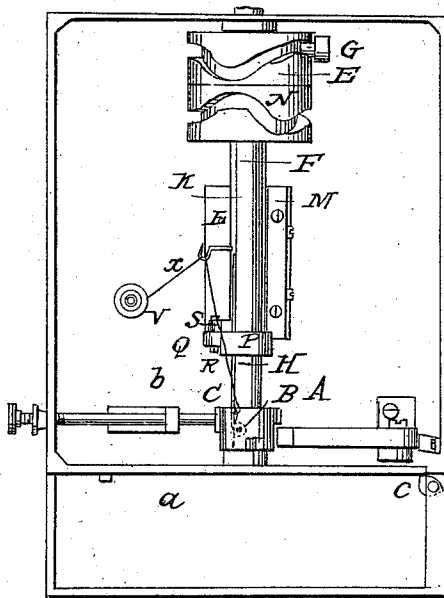


Fig. 7.

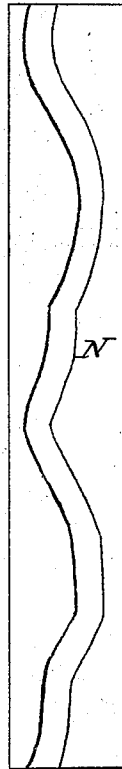


Fig. 8.



# UNITED STATES PATENT OFFICE.

GEO. A. LEIGHTON, OF BOSTON, MASS., ASSIGNOR TO NEHEMIAH HUNT.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 11,284, dated July 11, 1854.

*To all whom it may concern:*

Be it known that I, GEORGE A. LEIGHTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Machinery for Sewing Cloth, Leather, or other Material; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 represents a top view, Fig. 2 a side elevation, Fig. 3 a front end elevation, Fig. 4 a longitudinal vertical and central section, and Fig. 5 an under side view, of a sewing-machine having my improvement applied to it.

My improvement is applicable to such machines as operate or produce sewing in cloth or other material by the interlooping of two threads by the conjoint action of two needles in such manner that each needle is made to carry a loop of thread through a loop formed by the other needle, whereby one thread serves as a binding-thread to the other. Machines of this description are well known and in common use, and such as have been constructed previous to the date of my invention, with few or no exceptions, have had their needles working respectively in two planes only—that is to say, while one needle moved upward and downward or back and forth in one straight line or plane, the other needle was made to operate continually on the same side of the first. Now, in accordance with my improvement, one needle is made to operate on two or the opposite sides of the other needle, such enabling me to perform the operation of sewing a seam or line of sewing which presents several advantages over others made by needles operating in the ordinary way. The seam produced by my machine is not only much flatter on that side where the double chain-stitch is shown, but rarely exhibits more than one of the threads on either side of the cloth or material to be sewed. It admits of cloth being sewed with two threads of different colors, one color appearing on one side of the cloth, while the other is exhibited on the other side of it.

In the drawings, A denotes the main table or frame of the machine, or that on which the cloth is laid during the operation of sewing. The platform of this table, or that on which

the cloth is laid, is composed of two parts, *a b*, the part *a* being hinged to the part *b*, as seen at *c*, so that it may be turned outward into a position as denoted by dotted lines in Fig. 1, in order to enable a person to obtain ready access to the needles for the purpose of threading them or otherwise. The said needles are exhibited at B C, the upper one being made to play or move upward and downward in a vertical or straight line, and to pass down through the cloth and afterward upward and out of the same. The lower needle in this case does not pass through the cloth, but during its operation is moved forward on one side, or to the left of the vertical needle, and made to pass through the loop of the thread thereof. This done, the vertical needle is raised upward and out of the cloth, and as soon or soon after it has risen wholly above the horizontal needle, the said horizontal needle is moved toward the right and backward a little, so as to allow the vertical needle, when it next descends, to pass to the left of the horizontal needle and between it and the thread lying on the left side of it. This accomplished, the vertical needle descends to the extent of its downward movement and next rises a little, so as to belly the loop of the thread, the horizontal needle in the meantime being moved backward until it gets beyond the vertical needle, when it is moved laterally toward the left a short distance beyond the vertical needle, and is next moved forward on the left side of the vertical needle and between it and its bellying thread. Having passed forward, the upper needle is raised out of the cloth, and thus the operation of the needles in sewing is carried on. From the above it will be seen that the lower or horizontal needle does not play backward and forward in one continuous straight line, but it has lateral motions imparted to it, so as to cause each needle in passing through the loop of the other to always pass on the left side of such other needle.

The upper needle-carrier is shown at D, it being made to slide up and down by means of a grooved cam, E, (fixed on the driving-shaft F,) and a bent lever, G, in the ordinary way; or said needle-carrier may be elevated and depressed by any other suitable mechanism. The lower or horizontal needle, C, is fixed to the front end of a lever, H, as seen in Figs. 4 and

5, and more particularly in Fig. 6, which exhibits a view of the said lever and its slide and certain parts adjacent thereto. Said lever or carrier of the lower needle turns horizontally on a fulcrum or pin, I, which is inserted in a slide or carriage, K. This carriage is suitably supported by means of stationary and parallel ways L M, so that it may have a reciprocating rectilinear movement, such movement being imparted to it by means of a grooved cam, N, (fixed on the driving-shaft,) and a stud, O, extending from said carriage. In Fig. 7 I have represented a view of the form of the groove of the said cam N developed on a plane surface of the length of the periphery of the cam or block in which said groove is cut. Fig. 8 also represents a similar view of the cam E. The lateral movement of the lever H in one direction is produced by means of a cam, P, (the form of which is exhibited in Fig. 9,) fixed on the driving-shaft and made to operate against a lever, Q, that has its fulcrum on a pin, R, and is jointed to a hook-slide, S, that embraces the lever H in front of its fulcrum, as seen in the drawings, and particularly in Fig. 9, which represents a side view of the cam P, the lever Q, the fulcrum R, and slide S, and the application of such slide to the lever H. The movements of the lever in the opposite direction are produced by a spring, T, affixed to the carriage K, and made to bear against the rear arm of the lever H, as seen in the drawings.

The spool for the thread *x* of the lower needle is seen at U, while that of the thread *y* of the upper needle is seen at V. The thread of each needle is passed through its eye from

its right to its left side. By imparting to the lower needle lateral movements, as above described, a line of sewing is performed in which the crossings of the loops of the two threads are drawn directly into or over the respective holes made through the cloth by the other needle, and so as to cause the threads of the chain formed by the lower needle to lie side by side without much, if any, overriding one another, and so as to make a very flat line of sewing, such as renders it not only useful in sewing cloth, but also of great advantage in the sewing of leather.

The feeding-motion of my machine is so nearly like that used by others that any description of it is unnecessary, as it constitutes no part of my invention.

My improvement and what I claim consists in—

Combining with the longitudinal movements of the two needles of the sewing-machine lateral movements of one needle, so that the forward and backward movements of each needle shall be respectively on opposite sides of the other, (instead of on the same side of it,) whereby the crossings of the loops are made to be drawn into or directly over the holes made through the cloth or material sewed, and so as to produce a very flat seam or sewing, substantially as specified.

In testimony whereof I have hereto set my signature this 13th day of April, A. D. 1853.

G. A. LEIGHTON.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.