JOHN H. LESTER.

Improvement in Sewing Machines.

No. 115,872. Patented June 13, 1871.

Fig. 1

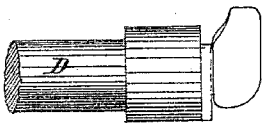

Fig. 2

Fig. 3

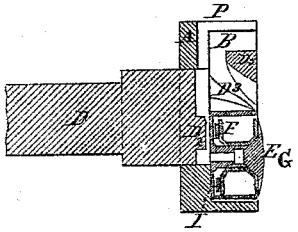

Fig. 4

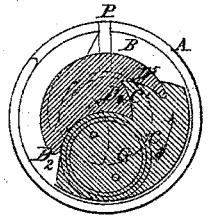

Fig. 5

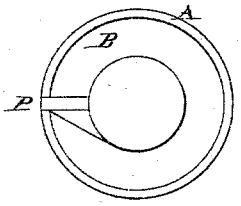

Fig. 6

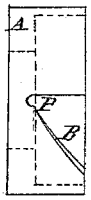

Fig. 7

Fig. 8

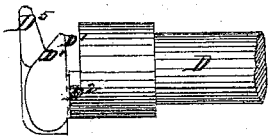

Fig. 9

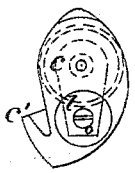

Fig. 10.

Witnesses

W. C. Dodge

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Inventor:

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by his attorney W. D. Gleason

UNITED STATES PATENT OFFICE.

JOHN H. LESTER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 115,872, dated June 13, 1871.

To all whom it may concern:

Be it known that I, JOHN H. LESTER, of Brooklyn, in the county of Kings, in the State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof.

My invention applies to that class of machines in which two threads are employed, forming what is known as the lock-stitch, and relates to the shuttle and means for operating the shuttle which introduces the second thread.

My invention is an improvement on that described in the patent issued to G. H. Lenher, dated November 22, 1866.

I will first describe what is considered the best means of carrying out my invention, and will afterward designate the points which I believe to be new therein.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation of the shaft. Fig. 2 is an end elevation of the shaft. Fig. 3 is a section through all the parts, to wit, shaft and shuttle. Fig. 4 is an end view of all the parts, to wit, shaft and shuttle. Fig. 5 is an end view of the race or fixed work in which the shuttle revolves; this figure shows the work as turned down—that is, the notch P, here shown on one side, is really at the top. Fig. 6 is a corresponding plan view of the same fixed part. Fig. 7 is another end view of the shaft alone. Fig. 8 is another side view of the shaft alone. Fig. 9 is a view of the face of the shuttle alone; and Fig. 10 is a side view of the shuttle alone.

Similar letters of reference indicate like parts in all the figures.

The drawings represent the novel parts, with so much of the other parts as is necessary to indicate their relations thereto. The material of all the novel parts may be iron or steel.

A is a portion of the fixed frame-work of the sewing-machine. B is a circular recess provided for the shuttle and the operating parts. A deep notch is provided, as indicated by P, at the upper side of the recess B, through which the needle is allowed to descend in producing each stitch. C is the shuttle. It carries the thread on a bobbin, F, secured by a screw, G, which screws into a post provided in the shuttle, as represented. I is a spring, which produces friction against the under side of the bobbin, and thus induces a proper tension on the thread *h* as it is delivered from the bobbin. The shuttle is provided with a pointed and smooth nose, C′, which, at each revolution of the shuttle, is inserted under the main thread, or between it and the needle; and by distending the loop thus produced the entire shuttle is thrown through the space between the needle and the thread with an effect which will be readily understood by those familiar with sewing-machines. The shuttle is carried around in the cavity D by the rotation of the main shaft of the sewing-machine. The main shaft is represented by D. The cavity B is concentric thereto, and the main shaft is extended into this cavity, and peculiarly shaped in order to perform the duties required.

I will designate the several parts of the end of the main shaft by different marks, distinctly explaining, however, that the whole may be, and preferably is, a single piece of metal. First, the main shaft is deeply recessed or cut into in the path of the needle, as indicated by the deep recess D^1. The material of the main shaft is removed very greatly at this point, and in order to provide sufficient strength the shaft is enlarged at this point, as indicated, so that the remaining portion D^2 will possess sufficient cross-sectional area. Beyond this contracted neck the main shaft is enlarged within the cavity B, as indicated by D^3 D^4 D^5. The surface between D^3 and D^4 is hollowed and adapted to fit to a corresponding portion of the shuttle, as indicated in Fig. 2. The point D^3 presses fairly against the shuttle, and serves as the impelling point to drive the shuttle in its continuous rotating motion. The point D^4 prevents the shuttle from becoming displaced; and the point or extended and smooth horn D^5, in connection with the other parts, performs the function of maintaining the proper condition of the thread as it is successively drawn out and liberated by the passage of the shuttle.

My construction and arrangement possess the very marked advantage over that described in the Lenher patent referred to, that it provides for driving the shuttle efficiently without the introduction of the additional parts of the mechanism described in the Lenher patent. In the Lenher construction the shuttle is driven in a

horizontal circle, and the upright shaft J with several attachments and connections are introduced for the express purpose of driving the shuttle. By my improved construction all the parts so introduced are dispensed with, and the main shaft is itself made available to drive the shuttle without requiring any additional part.

In the operation of my invention, the bobbin F having been filled with thread of the proper size, and the screw G having been adjusted so as to induce the proper degree of force in the spring I, and consequently a proper tension on the thread as it is delivered from the shuttle C, the machine is set in operation, and at each descent of the needle, or rather at each commencement of the ascent of the needle, the nose C′ of the shuttle is insinuated between the slackened thread and the needle, and the loop thus initiated is enlarged by the progress of the shuttle until it is compelled to pass over, or rather the entire shuttle is thrown through the loop, leaving the thread, which is drawn off from the bobbin F, as required, in the loop thus formed of the main thread, and as the needle rises and draws up the stitch the proper tension is induced on both threads and a complete lock-stitch is formed. The shuttle rotates continuously, and the operation is repeated at each revolution.

My machine is capable of the highest speed known in sewing-machine work. It operates with certainty, and with less liability to derangement than where a greater number of parts is employed.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. The shaft D recessed at the neck D^1, and connected, by a remaining part, D^2, with an enlargement having horns D^3, D^4, and D^5, when operated within a race, A, and adapted to serve, relatively, to a shuttle, C C′, and to a needle and its connections, as herein set forth.

2. The combination of the shuttle C C′, and the means provided therein for carrying and delivering the shuttle-thread, with the peculiarly-formed driving means D D^1 D^2 D^3 D^4 D^5, operating together in a sewing-machine as herein set forth.

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Witnesses:
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