

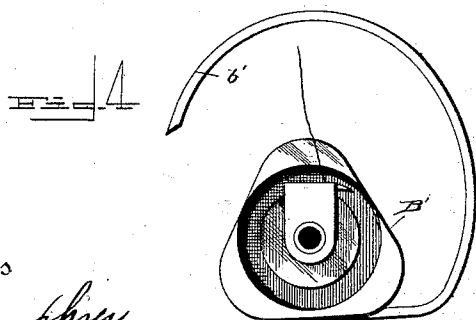
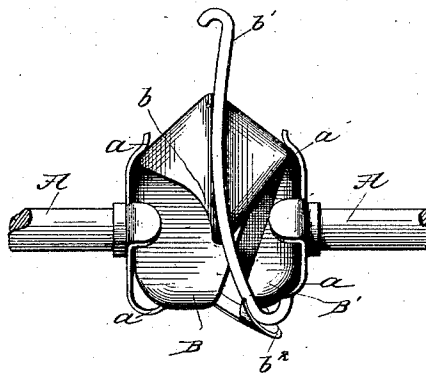
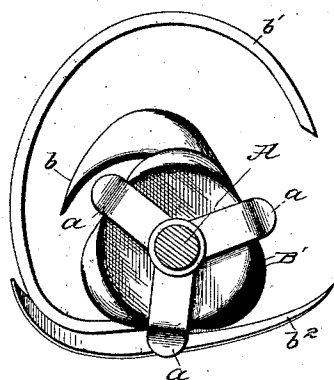
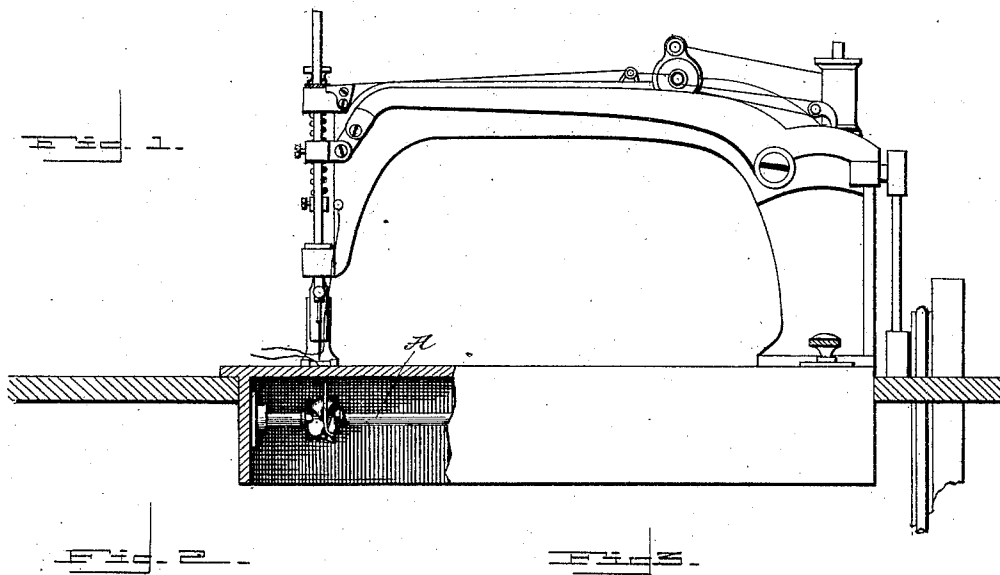
(No Model.)

2 Sheets—Sheet 1.

H. R. TRACY.
SEWING MACHINE.

No. 469,367.

Patented Feb. 23, 1892.



Witnesses

W. H. Humphrey

J. B. Kuder.

Inventor

Harriet Ruth Tracy,

By her Attorney

A. S. Dyer for H.

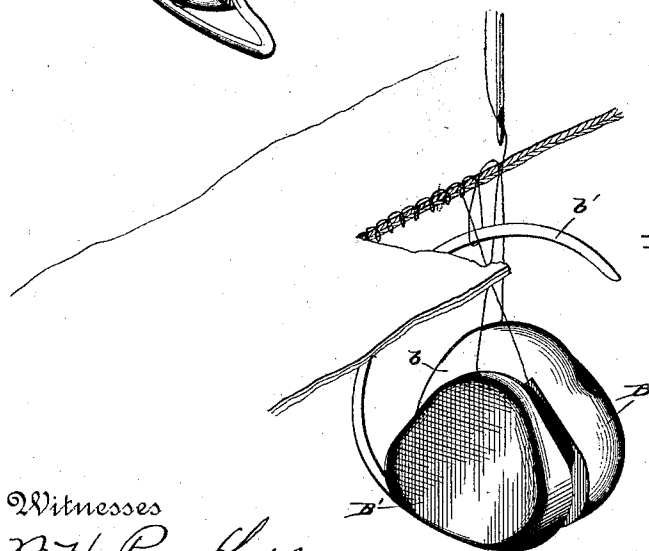
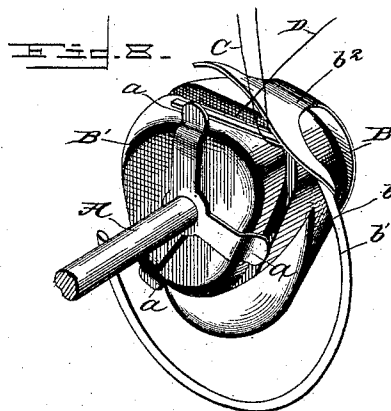
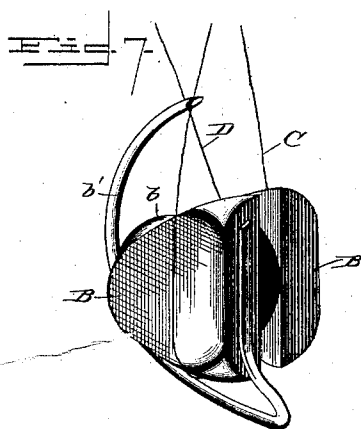
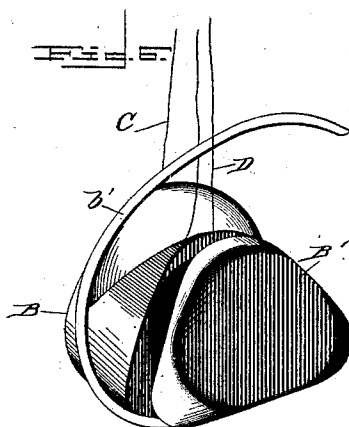
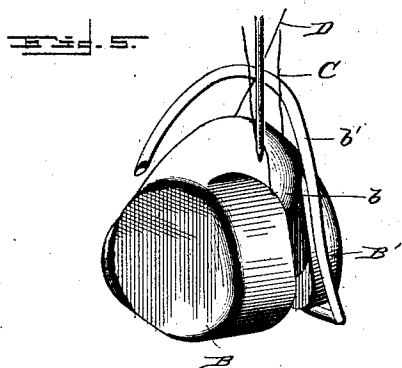
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2 Sheets—Sheet 2.

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Witnesses

W. N. Pumphrey

J. B. Kuder

Inventor

Harriet Ruth Tracy

By *her* Attorney,

A. S. Dyrenforth

UNITED STATES PATENT OFFICE.

HARRIET RUTH TRACY, OF NEW BRIGHTON, NEW YORK.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 469,367, dated February 23, 1892.

Application filed November 22, 1890. Serial No. 372,314. (No model.)

To all whom it may concern:

Be it known that I, HARRIET RUTH TRACY, a citizen of the United States, residing at New Brighton, in the county of Richmond and State of New York, 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 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to sewing-machines.

The objects of the invention are to produce a sewing-machine for making the ordinary chain or lock stitch of such construction as to require no separate take-up mechanism and which shall be capable of performing all the operations necessary in machines of this kind in a direct, reliable, and efficient manner; furthermore, to produce a sewing-machine for making the ordinary lock-stitch in which both threads can be used directly from a spool, ball, or cop, thus saving the time usually required to wind the shuttle-thread upon a bobbin, and in which the necessary take-up can be accomplished without the provision of a separate device for the purpose; furthermore, to produce a sewing-machine for making the ordinary lock-stitch in which both threads can be used directly from a spool, ball, or cop, and in which the shuttle is so arranged as to allow the loops of the needle-thread to pass through, by, or beyond the shaft of the shuttle to inclose the shuttle-thread, the shuttle being so formed as to serve as a take-up.

With these objects in view my invention resides in a sewing-machine comprising a loop-taker so mounted upon a suitable shaft as to permit the free passage of the thread between the two, the loop-taker being provided with a hook or projection for engaging the needle-thread and having a curved arm extending from the loop-taker, upon which the loop of the needle-thread of one stitch is shifted and retained until the thread of the loop is taken up to form the loop of the next succeeding stitch; furthermore, in a sewing-machine comprising a loop-taker so arranged upon a suitable shaft as to permit the passage of a thread between the two, the loop-taker having a hook

for engaging the needle-thread and having a curved arm projecting from the loop-taker, from which the loop of the needle-thread is shifted, and a fender or guard arranged adjacent to the hook, whereby the formed loops are directed upon the hook to prevent entanglement with the hooks at the time the needle-thread is to be engaged preparatory to forming a loop.

One embodiment of my invention is illustrated in the accompanying drawings, in which the invention is presented in a machine organized to sew with a lock-stitch.

Figure 1 is an elevation of a sewing-machine, showing my improved shuttle arranged in proper operative position. Fig. 2 is a side view of the shuttle, showing the manner of connecting the shuttle to the shaft. Fig. 3 is a face view particularly illustrating the method by which the needle-thread is engaged and the curved arm or projection upon which the completed loops are shifted. Fig. 4 is an elevation of one side of the shuttle, showing the interior and the arrangement of a spool of thread ready for use. Fig. 5 is a perspective view of my improved shuttle, showing it detached from the other parts of the machine, the needle-thread being shown in a position to be engaged by the shuttle-hook preparatory to forming a loop to engage the shuttle-thread. Fig. 6 is a perspective view showing the relative positions of the threads after the shuttle has been turned a short distance, the view being taken from the opposite side to that shown in Fig. 5 for the purpose of showing the guard or fender by which the entrance of the needle-thread into the shuttle is prevented. Fig. 7 is a perspective view showing the positions of the threads after the shuttle has engaged the needle-thread and made approximately a quarter of a revolution. Fig. 8 is a perspective view showing the positions of the threads at the time when the loop of the needle-thread formed by passing the thread around the shuttle is about to be shifted to the curved projecting arm, showing the fender or guard whereby the loop is shifted to prevent entanglement with the hook by which the needle-thread is engaged; and Fig. 9 is a perspective view showing the shuttle in position when it is about to release

a loop of the needle-thread and bind with it a portion of the shuttle-thread, thus forming a complete stitch.

In the drawings, A represents the main shaft of a sewing-machine in which is mounted my improved shuttle. The preferred manner of attaching the shuttle to the shaft in such a way as to insure their turning together and at the same time to permit the passage of a thread freely between the shaft and the shuttle is by giving to the exterior of the sides of the shuttle some form other than circular—as, for instance, that of a triangle with rounded angles, as illustrated in the present embodiment of the invention. On the ends of the shaft adjacent to the shuttle are the arms *a*, corresponding in number to the number of plane surfaces on the sides of the shuttle. These arms are formed to engage the shuttle and cause it to rotate with the shaft and at the same time to permit passage between the fingers and the shuttle of the needle-thread.

I do not wish to limit myself to this specific manner of attaching the shuttle to the shaft, as any suitable device may be utilized, the requirement being only that the shuttle shall receive positive motion from the shaft through means permitting the passage between the shaft and the shuttle of the thread.

The shuttle is made in two parts B and B', each of which has an opening of a size to form a receptacle sufficiently large to receive a spool, ball, or cop of thread when the parts are properly joined. When the parts are joined for use, there is a continuous opening extending entirely around the same to permit free delivery of the shuttle-thread.

Attached to or formed with one of the parts of the shell is a hook *b*, designed to engage the loop from the needle-thread as the reciprocating needle descends, the shuttle being arranged and its revolution so timed as to engage the needle-thread as the needle reaches the limit of each downward movement.

Connected with the shell of the shuttle at one side is the arm *b'*. This arm is attached to the shuttle at one side and extends upward diagonally across the shell of the shuttle, terminating at a point above the middle of the shuttle. This projection or arm is so formed that the distance between it and the shuttle gradually increases from the place of its attachment to its free end, in order that it may receive the loop of the needle-thread, carry it away from the shuttle upward toward the work, and release it when within a short distance of the cloth operated upon.

*b*² designates a fender connected in any suitable way to one of the arms *a*, by which the shuttle is attached to its driving-shaft. This fender extends diagonally across the shuttle-case a short distance from it. The function of the fender is to direct the thread from the hook *b* at a point where the hook is about to engage the loop of the needle-thread, and at the time when the needle-thread is about to be shifted to the curved projection *b'*.

In the operation of the device, the revolution of the shuttle being so timed as to bring the point *b* into a position to engage the thread as it reaches the limit of its downward movement, the needle-thread is engaged by the hook *b*, and as the shuttle continues to revolve the loop is lengthened and spread out, as shown in Fig. 5. As the shuttle continues to revolve the loop of the needle-thread C slides over the outside of the shuttle between the ends of the shuttle and the driving-shaft. When the loop comes in contact with the guard or fender *b*², it is moved from the center of the shuttle to the side carrying the curved projection *b'*, and on which the loop is received, thus preventing entanglement with the hook *b*, which at this point is about to engage the needle-thread. The loop slides on the curved projection *b'*, and as the thread from the needle is taken again by the hook *b* the thread on the first loop is drawn through the cloth and around the shuttle by the hook, thus binding the thread of the first loop firmly to the cloth and inclosing with it the shuttle-thread D, which has been inclosed by passing the loop entirely around the shuttle.

From the foregoing it will be clear that no independent mechanism or device is needed for accomplishing the take-up, as this is done reliably by the ordinary operation of my improved shuttle when properly driven and timed in connection with the needle of an ordinary sewing-machine.

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

1. A sewing-machine of the class in which the loop-takers are so arranged as to permit the passage of the needle-thread entirely around them, comprising a loop-taker provided with a hook or projection for engaging the needle-thread and with a curved elongated projection arising from a point approximately opposite the engaging hook or projection and arranged in a plane which is substantially at right angles to the axis of revolution of the loop-taker for receiving a loop formed by engaging the needle-thread by the engaging hook or projection and carrying it around the loop-taker and for retaining the same until taken up by the short hook to form the succeeding stitch, substantially as described.

2. A sewing-machine of the class in which the loop-takers are so arranged as to permit the passage of the needle-thread entirely around the loop-taker, comprising a loop-taker provided with a short hook or projection for engaging the needle-thread and with a curved elongated projection arising from a point opposite the said engaging hook and arranged substantially in a vertical plane which is at a right angle to the axis of revolution of the loop-taker for receiving a loop formed by engaging the needle-thread by the short hook or projection and carrying it around the loop-taker and for retaining the same until taken

up by the short hook to form the succeeding stitch, the said elongated projection extending beyond the point diametrically opposite its place of beginning on the shuttle.

5 3. A sewing-machine of the class in which the loop-takers are so arranged as to permit the passage of the needle-thread entirely around them, comprising a loop-taker provided with a hook or projection for engaging
10 the needle-thread and with a curved elongated projection arranged in a plane substantially at right angles to the axis of revolution of the loop-taker for receiving the loops formed by engaging the needle-thread by the hook or
15 projection and for retaining the same until taken up by the short hook to form the succeeding loop, the elongated hook or projection being so arranged with relation to the body of the loop-taker as to have an increasing distance between it and the body of the loop-taker from its fixed to its free end, substantially as described.

4. A sewing-machine of the class in which the loop-takers are so arranged as to permit
25 the passage of the needle-thread entirely around the loop-taker, comprising a loop-taker provided with a short hook or projection for engaging the needle-thread and with a curved elongated projection arranged substantially in a vertical plane which is at a
30 right angle to the axis of revolution of the loop-taker for receiving loops formed by en-

gaging the needle-thread by the short hook or projection and for retaining the same until taken up by the short hook to form the
35 succeeding loop, the elongated hook or projection extending beyond the point diametrically opposite its place of beginning on the loop-taker and being so arranged with relation to the body of the loop-taker as to have
40 an increasing distance between it and the body of the loop-taker from its fixed to its free end.

5. A sewing-machine of the class in which the loop-takers are so arranged as to permit
45 the passage of the needle-thread entirely around them, comprising a loop-taker provided with a hook or projection for engaging the needle-thread, with an elongated projection arranged in a plane substantially at right
50 angles to the axis of motion of the loop-taker for receiving the loop formed by passing the needle-thread around the loop-taker, and with a guard or fender whereby the thread is directed away from the hook by which the needle-thread is engaged, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HARRIET RUTH TRACY.

Witnesses:

R. G. DYRENFORTH,
F. B. KEEFER.