

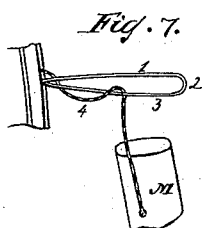
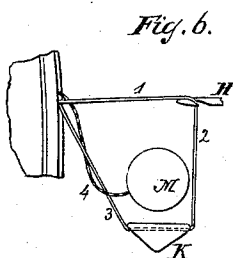
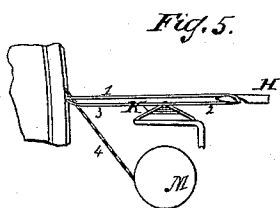
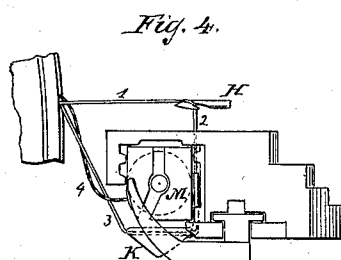
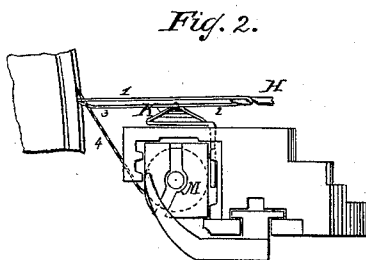
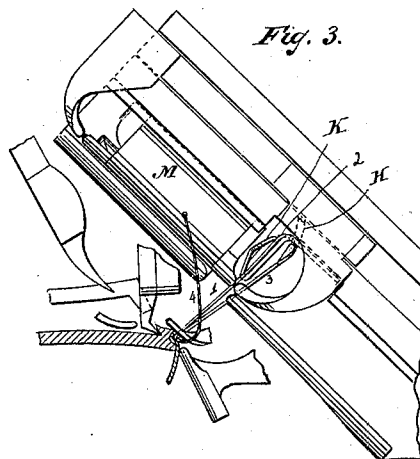
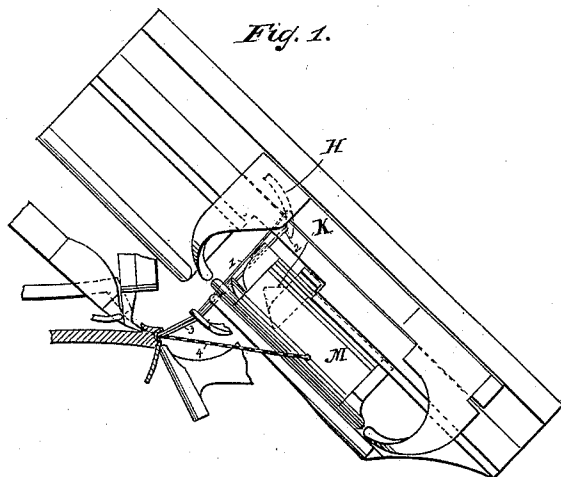
(No Model.)

3 Sheets—Sheet 1.

C. DANCEL.
SEWING MACHINE.

No. 567,888.

Patented Sept. 15, 1896.



WITNESSES:

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INVENTOR:

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(No Model.)

3 Sheets—Sheet 2.

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Fig. 8.

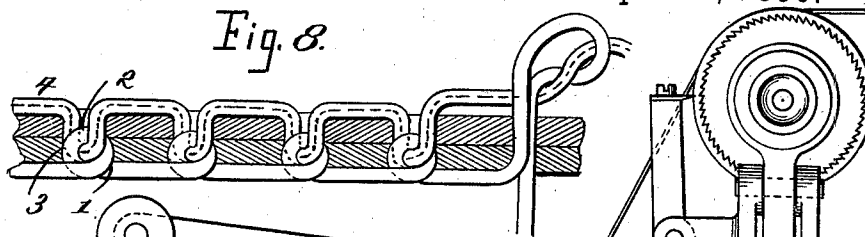
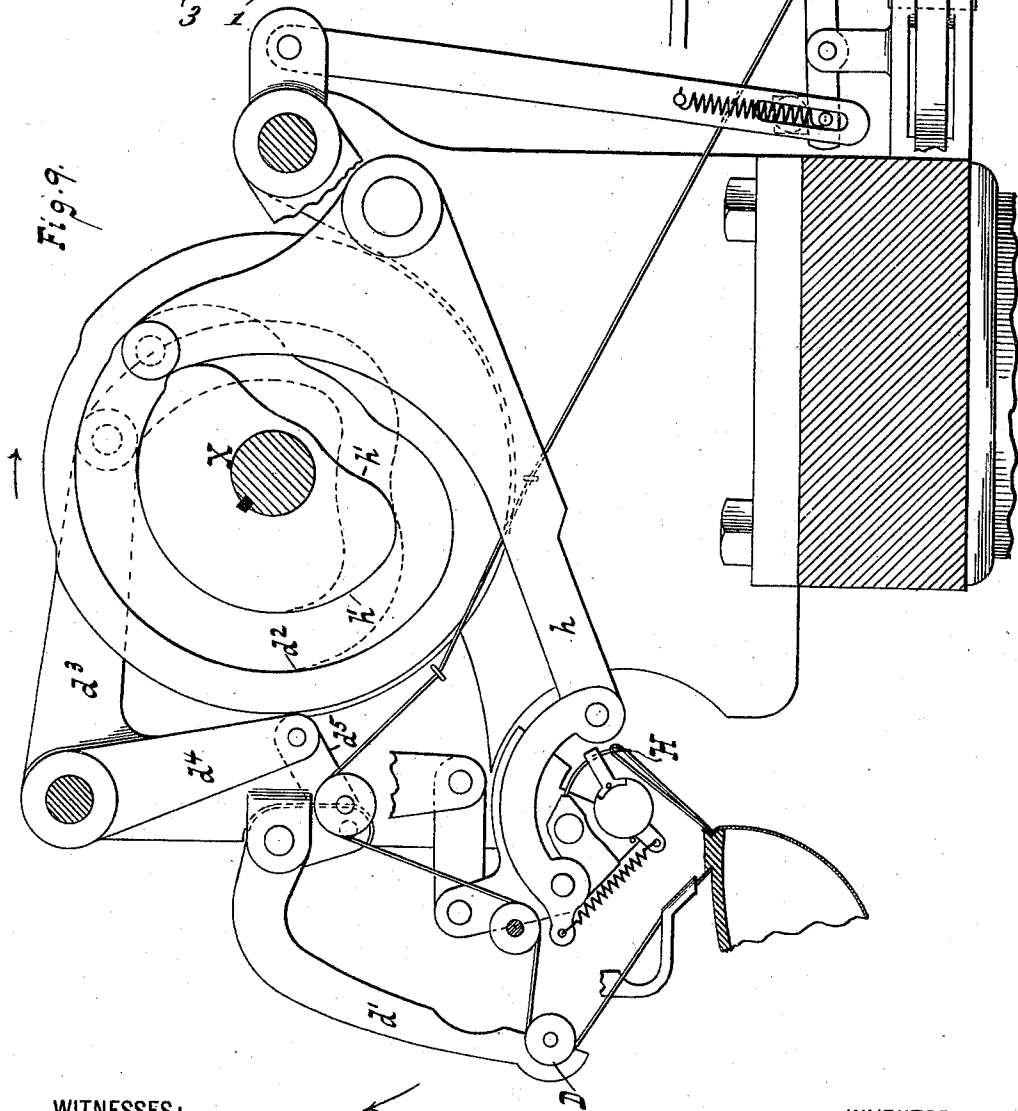


Fig. 9.



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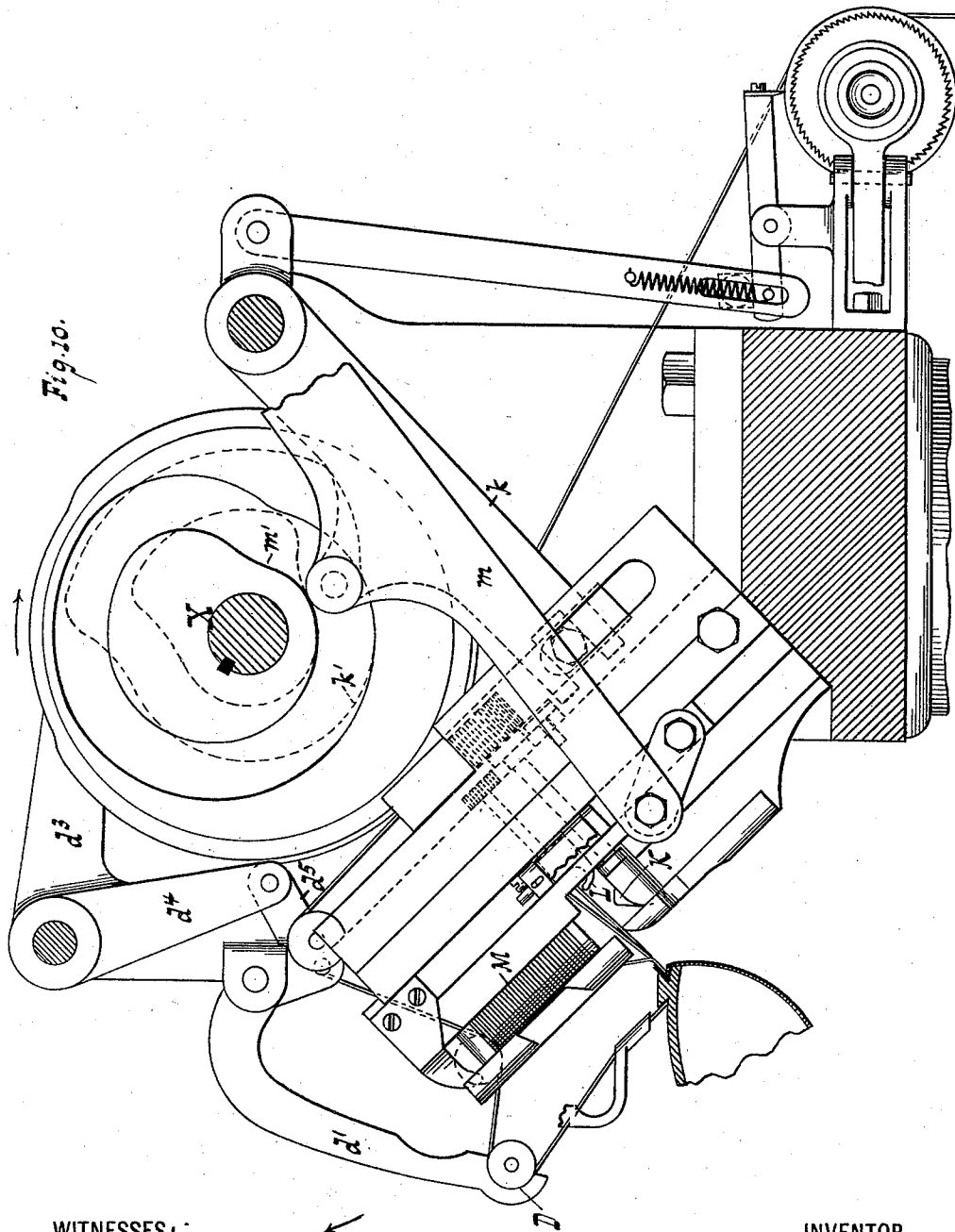
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

CHRISTIAN DANCEL, OF NEW YORK, N. Y., ASSIGNOR TO THE GOODYEAR
SHOE MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 567,888, dated September 15, 1896.

Application filed June 28, 1894. Serial No. 515,999. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN DANCEL, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Stitch-Forming Mechanism, of which the following is a specification.

This invention relates to stitch-forming mechanism or sewing-machines suitable for sewing the uppers of boots and shoes to the insoles; and it consists, essentially, in a work-support combined with needle-actuating mechanism and with a shuttle-race, said needle-actuating mechanism being located to one side of the work-support and the shuttle-race being made to pass by the same side of the work-support on which the needle-actuating mechanism is situated, said needle-actuating mechanism being provided with a needle and said shuttle being combined with actuating means, as hereinafter described, and so timed with relation to the needle-actuating mechanism that the needle draws out a loop of needle-thread and the shuttle passes along outside of said loop, and is then returned or passed through said loop, for looping or twisting the shuttle-thread about a shank of the needle-thread loop.

The invention is illustrated by the accompanying drawings, in which—

Figure 1 is a side elevation of mechanism for forming the stitch, the shuttle being down. Fig. 2 is an end view of part of Fig. 1, the view being taken from the upper end of Fig. 1. Fig. 3 is a side elevation of mechanism for forming the stitch, the shuttle being up. Fig. 4 is an end view of part of Fig. 3, the view being taken from the upper end of Fig. 3. Fig. 5 shows the threads for forming the stitch when the needle has drawn out a loop. Fig. 6 shows a plan view of the threads for forming the stitch, the needle having drawn out a loop and the shuttle having risen and the loop having been spread. Fig. 7 shows in perspective the stitch completed ready to be tightened. Fig. 8 shows the stitch tightened, and Figs. 9 and 10 are detail sectional elevations illustrating mechanism composed of parts so timed with relation to each other as to produce a stitch according to my invention.

As seen in Fig. 1, the work-support T is

adapted to support or have held thereto the work or the upper of a boot or shoe while the insole is being stitched thereto, and located on one side or to the rear of this work-support are the spreader K, as also the actuating mechanism for the circular hooked needle H, and the shuttle-race or shuttle-box ^l ^l is made to pass by the same side of the work-support on which the needle-actuating mechanism is situated.

In the well-known manner of sewing shoes by machinery a hooked or barbed needle H passes through the work and seizes a loop of needle-thread, whereupon the needle returns or moves back, drawing the thread-loop through the work, and said loop being then spread by spreader K, which carries one shank of the loop across the shuttle-race, the shuttle is shot through the loop.

In forming the stitch embodying the subject-matter of this application the needle draws out a loop 1 2 3 of needle-thread while the shuttle is down or in the lower part of the race, as seen in Fig. 1, so that this loop 1 2 3 is drawn out over the shuttle-thread 4. The shuttle-thread, as seen in Figs. 1, 2, and 5, now extends from the last preceding stitch under the loop 1 2 3 to the shuttle. The shuttle M is then shot upward before the loop 1 2 3 is spread into the shuttle-race, so that the shuttle in this upward throw does not enter or pass through the loop, but passes up outside such loop, and that part of the shuttle-thread depending from the shuttle will lie in front of the loop of thread drawn out by the needle, as seen in Fig. 3. After the shuttle is up and while it remains up the loop is spread, Figs. 4 and 6, the shank 3 of the loop being carried across the shuttle path or race, as seen in Fig. 6. The shuttle then descends and passes through the spread loop, carrying the shuttle-thread through said loop, so that said shuttle-thread is looped or twisted about shank 3, Fig. 7, the loop being released by the spreader K when the shuttle has reached the position shown in Fig. 7, so that the loop is now free to be taken up or drawn in.

When the loop of sewing-thread about a shank of which the shuttle-thread has been twisted, as seen at the right-hand end of Fig. 8, is drawn into the material by the tightening of the stitch, the shuttle-thread is drawn

into a loop, as seen at the left of said Fig. 8, and the branches of each needle-thread loop come to rest in a twisted or overlapped position, so that said threads are prevented from drawing loose. The mechanism shown is such as is adapted for shoe-sewing, the hooked circular needle H entering the material from one side and the shuttle being placed on the same side of the material at which the needle enters, the said parts being timed to operate with relation to each other, so that as the needle enters the material to seize the loop of sewing-thread and then starts on its return to draw up said loop said shuttle is in its lower position to cause the shuttle-thread to lie below the needle or below the sewing-thread loop, said shuttle moving up as the loop is being drawn out by the needle and having moved up when a shank of said loop is being spread across the shuttle-path, said shuttle when the loop-shank has been so spread moving back through the loop to its lower position to cause the shuttle-thread to make one twist or turn about a shank of the loop.

The needle H, actuated by lever *h*, engaging cam-groove *h'*, is shown in its retracted position or as having drawn up a loop of sewing-thread, and will remain so until the low part of cam-groove *h'*, or that part of cam-groove *h'* nearer the cam-supporting shaft X, comes to actuate lever *h* to swing needle H forward or toward the work.

The spreader K carries one shank of the sewing-thread loop across the path of shuttle M and the cast-off L takes the loop from the needle or out of the needle-hook at the proper moment, or before the drawing in of the loop by the take-up is commenced. This spreader and cast-off are actuated by lever *k*, engaging cam-groove *k'*.

The take-up roller D on arm *d'* is actuated through link *d⁵* by lever *d⁴* *d³* engaging cam-groove *d²*.

The loop of sewing-thread having been drawn out and the shuttle M having passed up or along outside of the loop, the high part of cam-groove *k'* comes to engage lever *k* to actuate the latter for carrying or swinging the spreader *k* across the shuttle-path and spread the loop. After the loop has been spread the high part of cam-groove *m'* comes to engage lever *m* for moving the shuttle M through such spread loop. After the shuttle has passed through the loop the take-up draws in or sets the stitch. The shuttle might also have its nose so formed as to spread the loop when descending, so as to dispense with a spreader.

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

A work-support combined with a needle-driving mechanism and a spreader located at one side of the work-support and a shuttle-race made to extend along past the same side of the work-support on which the needle-driving mechanism and spreader are located, said needle-driving mechanism being provided with a hooked circular needle and said shuttle-race being provided with a shuttle, and said spreader and shuttle being combined with actuating means substantially as described and timed with relation to the needle-driving mechanism as set forth so that the needle draws out a loop of needle-thread and the shuttle passes along outside of said loop, the loop is then spread across the shuttle-path, and the shuttle returns or passes through said spread loop for looping or twisting the shuttle-thread about a shank of the needle-thread loop substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHRISTIAN DANCEL.

Witnesses:

WM. C. HAUFF,

E. F. KASTENHUBER.