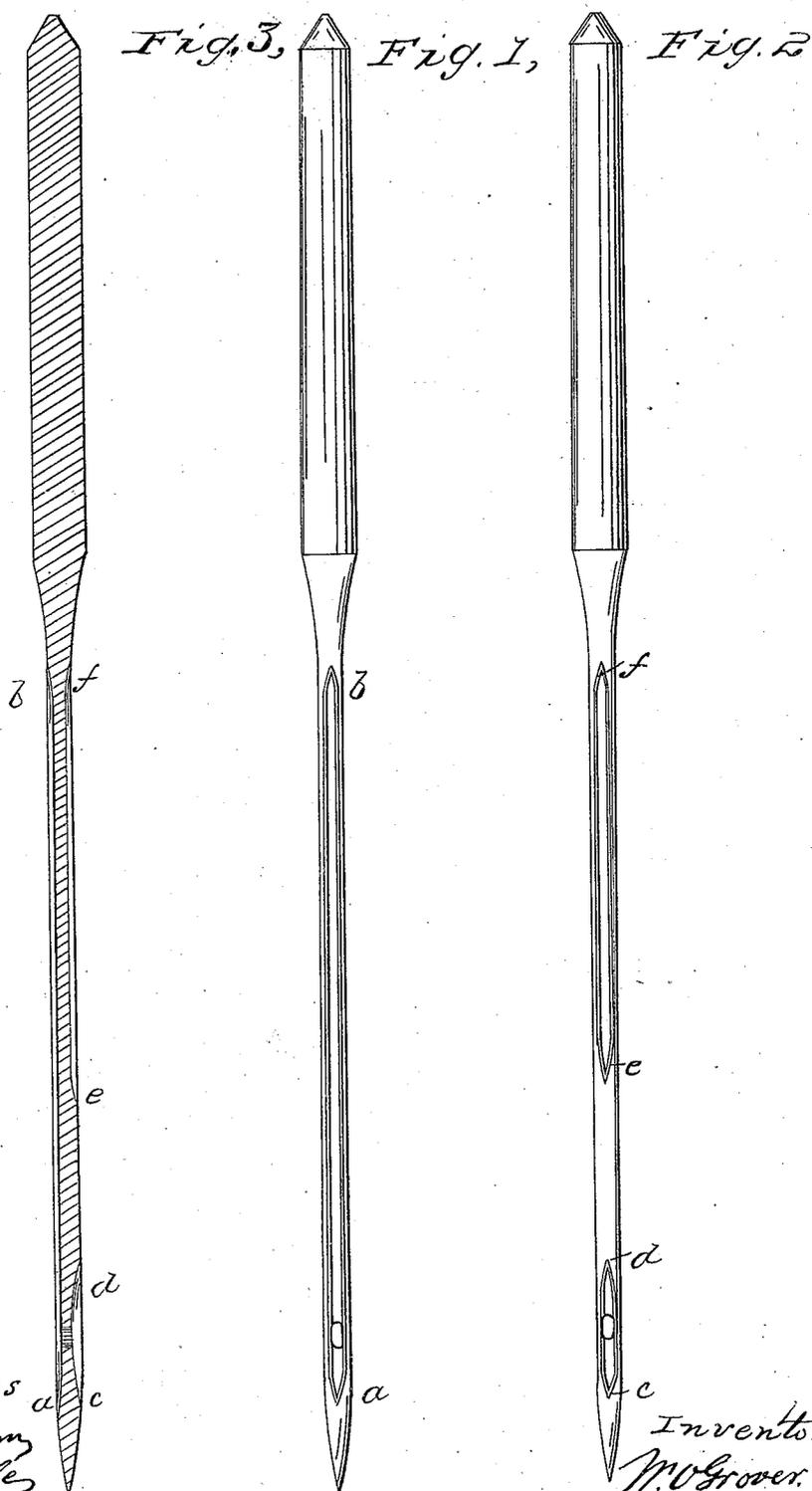


W. O. GROVER.  
Sewing Machine Needle.

No. 34,571.

Patented March 4, 1862.



Witnesses  
J. H. Mumy  
J. B. Hales

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# UNITED STATES PATENT OFFICE.

WILLIAM O. GROVER, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN SEWING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 34,571, dated March 4, 1862.

*To all whom it may concern:*

Be it known that I, WILLIAM O. GROVER, of the city of Boston, county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in the Needles of Sewing-Machines; and I do hereby declare that the following, taken in connection with the drawings, is a full, clear, and exact description thereof.

The drawings are made on a large scale, so as to show the improvement clearly, which is applicable to eye-pointed needles of all kinds and sizes; and in the drawings—

Figure 1 is an elevation of one side of a needle. Fig. 2 is an elevation of the opposite side, and Fig. 3 is a section through the needle.

Sewing-machine needles, commencing at the time of Howe's invention of a sewing-machine and continuing since that time, have been made with grooves either on one or both sides thereof, such grooves commencing below the eye and extending upward toward the shank of the needle, at least so far as the point up to which the needle penetrates the cloth. These grooves protect the thread and hold it in proper position on the body of the needle to form the loop. They also aid in laying the stitch. If the needle were not grooved the loop, when forming, might bulge out from the needles in a direction unsuitable for the entrance of the shuttle or hook or non-perforating eye-pointed instrument acting in connection with the piercing-needle to make a stitch. The only objection to the use of the grooves is that they sometimes prevent the thread from bulging out to form the loop when the needle is retracted, owing to the groove being too narrow and deep, or, owing to the fact that the edges of the groove are imperfectly constructed, the smallest feather-edge on either side of the groove catching the thread and preventing the formation of a loop. It has been attempted to remedy this evil by grooving the needle on one side only; but other and serious difficulties are encountered, owing to the fact that when one groove only is used the thread is not thoroughly protected, and is, moreover, at liberty to twist around the needles, not being held in place by a groove. When the thread thus twists, a loop is formed on the wrong side of the needle and the point of the interlooping instrument sometimes does not enter it.

My improvement, as I have ascertained by experiments, does remedy the difficulty and also insures a more perfect loop than the two-grooved needle, even when both grooves are of proper dimensions and of perfect construction on their edges; and my invention consists in providing the needle with a continuous groove on one side in combination with an interrupted groove on the other side, as hereinafter described.

By reference to the drawings, it will be perceived that the needle is grooved continuously on one side from a point a little below the eye well up toward the shank, as from *a* to *b*, and that on the other side there is a short groove in the vicinity of the eye, as from *c* to *d*, then an ungrooved space from *d* to *e*, and then another groove from *e* to *f*. The blank or ungrooved space should be at that point of the needle at which the point of the shuttle, hook, or other instrument acting to seize a loop enters, and the proportional lengths and the precise locations of the grooves shown in the drawings are such as I prefer, although the proportional and absolute lengths and the positions may be varied as may be required by the precise instrument in which the needle is to be used or by the peculiar preferences of the manufacturer.

When this needle is used the thread will be protected on both sides when the needle is entering the cloth, and for the greater portion of the time that the needle is in the cloth it will be perfectly free to bulge from the ungrooved space when the needle retracts to form a loop, and when the thread is strained tight at the lowest point of descent of the needle it will be stretched from the grooved over the ungrooved space in such a line as to insure its bulging out or protrusion at the precise point where the greatest protrusion is needed. Owing to the fact that the needle is not grooved at the point where the shuttle or other seizing instrument enters, a very small protrusion will insure a sufficient space for the entrance of a point, and the interrupted groove controls the thread sufficiently to prevent any twisting of the needle-thread around the body of the needle. These effects resulting from my invention will be apparent to those well instructed in the use or construction of sewing-machines, and when carefully considered, even by those who are not well skilled, will prove that there is considerable merit in that which

to the careless or uninformed observer would appear to be merely a capricious change of form.

I claim as of my own invention—

An eye-pointed needle having an interrupted groove on one side and a continuous groove on the other, substantially such as are herein described.

In testimony whereof I have hereunto subscribed my name, in the city of Boston, on this 31st day of October, A. D. 1860.

W. O. GROVER.

In presence of—

JAS. H. BROWN,  
I. C. WADE.