

(No Model.)

A. LEGG & C. W. WESTON.
SEWING MACHINE NEEDLE.

No. 474,841.

Patented May 17, 1892.

Fig. 1. Fig. 2. Fig. 3. Fig. 4.

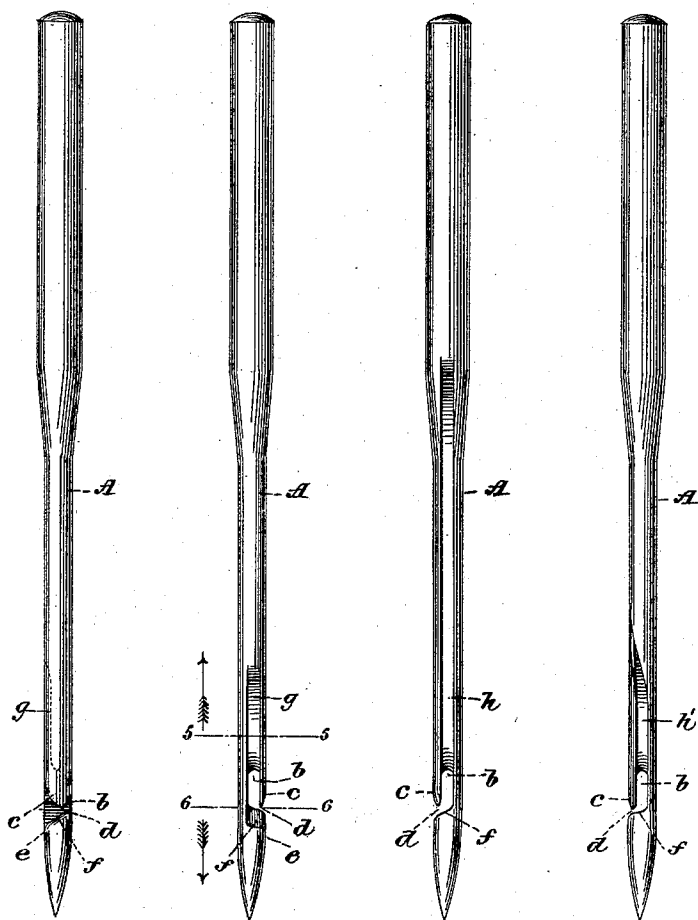
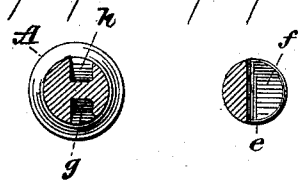


Fig. 5. Fig. 6.



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ALBERT LEGG, OF MILTON, AND CHARLES W. WESTON, OF NEW YORK, N. Y.

SEWING-MACHINE NEEDLE.

SPECIFICATION forming part of Letters Patent No. 474,841, dated May 17, 1892.

Application filed October 15, 1891. Serial No. 408,815. (No model.)

To all whom it may concern:

Be it known that we, ALBERT LEGG, residing at Milton, in the county of Ulster, and CHARLES W. WESTON, residing at New York, in the county of New York, State of New York, both citizens of the United States, have invented certain new and useful Improvements in Needles for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to needles for sewing-machines in which the needle is threaded and unthreaded at every stitch; and its object is, first, to construct a needle having a recess or open eye that will operate with all kinds of complemental stitch-forming mechanism below the cloth-plate; second, to construct such a needle that will operate successfully upon all kinds of material. We attain these objects by the device illustrated in the accompanying drawings, in which similar letters of reference refer to similar parts throughout the various views.

Figure 1 is an enlarged front view of a needle embodying our invention. Fig. 2 is a left-side view, and Fig. 3 a right-side view, of the same. Figs. 5 and 6 are cross-sections, respectively, on lines 5 5 and 6 6, looking in the direction of the arrows of Fig. 2. Fig. 4 shows a modification.

Referring to Figs. 1, 2, and 3, A is a needle adapted to fit the needle-bar of a sewing-machine. Near the point or lower end of the needle, or where the eye is ordinarily located, a recess or notch *b* is formed, running upward toward the butt of the needle. This recess or notch *b* is shaped substantially like an ordinary needle-eye, open at the lower extremity—such, for instance, as that shown in our application for Letters Patent for sewing-machines, Serial No. 344,301, filed March 18, 1890.

In a reciprocating-shuttle machine it is essential that the needle should carry the thread in its eye or recess during its partial rise for the purpose of forming a loop for the entry of the shuttle and not slip out until some resistance other than mere gravity is met upon the farther rise of the needle. We therefore form the recess or notch *b* smallest at its opening-point *d*. The size of said opening *d* regu-

lates the size of thread to be used; but a much wider range of thread may be used in the same needle than in any needle now used.

We have found that in operating upon material that hugs the needle closely—such, for instance, as fine new muslin—the spur *c* of the recess is apt to catch and tear the material, unless it is guarded more effectually than has been accomplished heretofore. To this end we round or point the lower end of said spur *c*, so that said point is on all sides within the outside line or normal surface of the needle, and also omit the ordinary grooves at *e* below the eye or recess, as the thread is not carried by the recess on its rise when it is above the material.

In order to facilitate the easy rise of the needle through the material, we slope or round off the edges of the lower surface *f* of the recess, or the whole surface *f* may have a general slope or slant outward from the back of the recess and down toward the point of the needle. We have found that when this surface *f* of the recess has no slope or slant, or slants only outward and down toward the point, the thread is apt to be injured or broken, and does not slip out readily from the recess at the proper time. We therefore slant or slope said surface *f* in the direction of feed of the thread—to wit, from the long-groove side of the needle down toward the short-groove side, as shown in Figs. 1 and 6. The result of which construction is that the thread is fed more readily through the recess or eye and is released therefrom more readily when resistance is met. We have found, too, that the operation of the needle may be facilitated by rounding or pointing the lower end of said spur *c* more toward the long-groove side of the needle than the other. By this means the size of the opening *d* may be diminished by bringing the end of spur *c* opposite a higher point of the slanting surface *f* and the general slant of the various parts is increased, rendering the passage of the needle both ways through the material easier.

To render the needle strong, we form the recess *b* so that its center line is a little in front of the longitudinal center line of the needle and the long and short grooves *h* and *g*, respectively, also a little in front of said center

line. Thus there is a line of greater amount of stock down the back of the needle, as shown in Fig. 5.

In our application for Letters Patent for a sewing-machine filed simultaneously herewith a mechanism is described by which the thread is fed to the needle in front when the needle is in the material. In such a mechanism the long groove *h'* of the needle may be turned as shown in Fig. 4. The object of this device is to allow the thread, when it is fed to the needle from the front, to pass down through the long groove thereof.

What we claim, and desire to secure by Letters Patent, is—

1. A sewing-machine needle having a recess for engaging the thread, which consists of a notch in the front of said needle and running up toward the butt of the same, the point of the spur of said notch being on all sides within the normal surface of the needle, and the lower surface of said notch being inclined downward all the way from the long-groove side to the short-groove side of said needle, substantially as and for the purposes described.

2. In a sewing-machine needle, the device for engaging the thread, which consists of a notch in the front of said needle and running

up toward the butt of the same, the point of the spur of said notch being on all sides within the normal surface of the needle, and the lower surface of said notch being inclined downward all the way from the long-groove side to the short-groove side of said needle, and also outward and downward from the back of said notch, substantially as and for the purposes described.

3. In a sewing-machine needle, the device for engaging the thread, which consists of a notch in the front of said needle and running up toward the butt of the same, the point of the spur of said notch being on all sides within the normal surface of the needle and on the long-groove side of the longitudinal center line thereof, and the lower surface of said notch being inclined downward from the long-groove side to the short-groove side of said needle, substantially as and for the purposes described.

In testimony whereof we affix our signatures, in presence of two witnesses, this 14th day of October, 1891.

ALBERT LEGG.

CHAS. W. WESTON.

Witnesses:

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H. V. N. PHILIP.