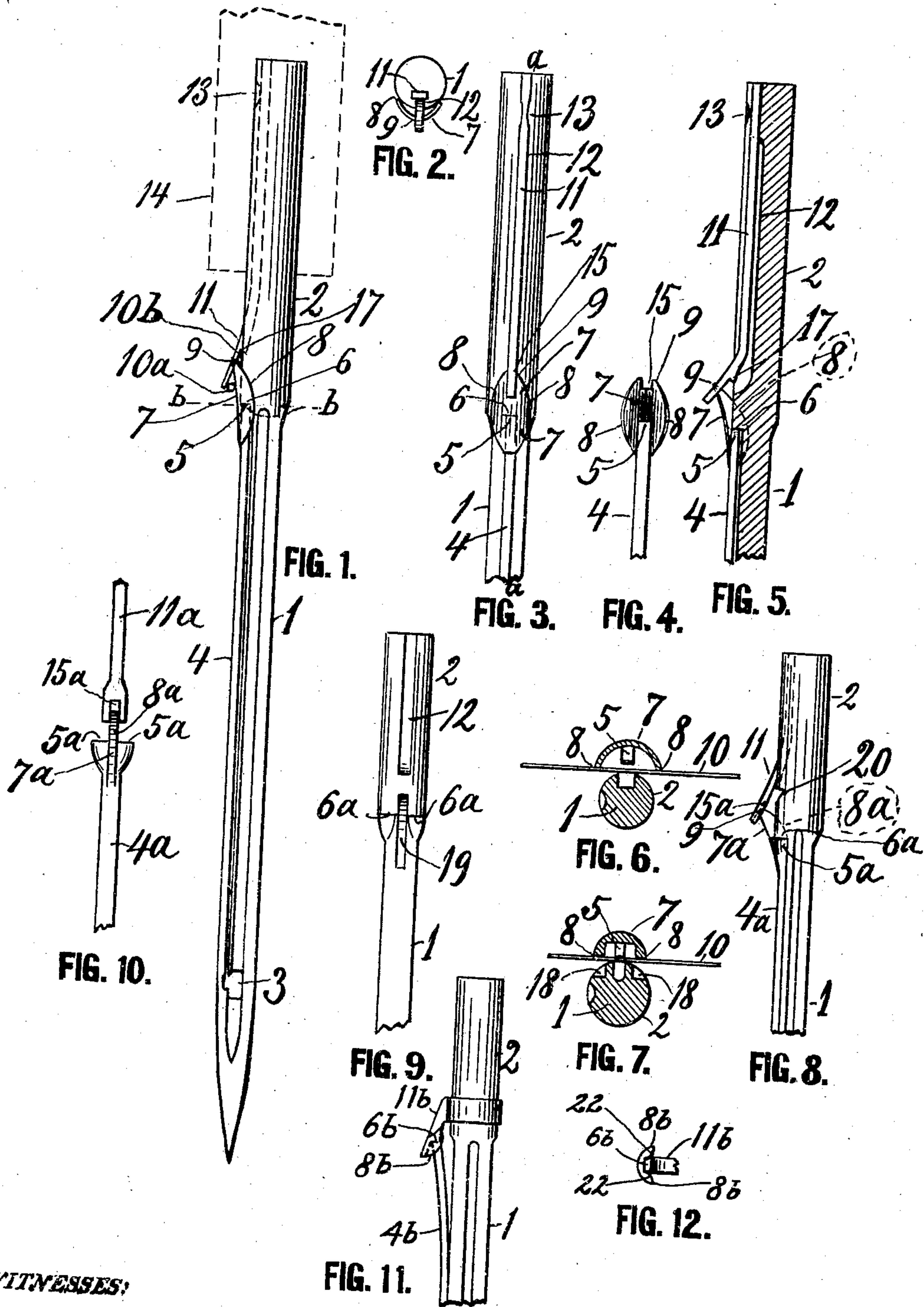


No. 879,608.

PATENTED FEB. 18, 1908.

A. M. CARLSEN.  
SEWING MACHINE NEEDLE.  
APPLICATION FILED OCT. 4, 1907.



WITNESSES:  
D. C. Carlson.  
C. C. Carlson.

INVENTOR:  
Andrew M. Carlson.



# UNITED STATES PATENT OFFICE.

ANDREW M. CARLSEN, OF ST. PAUL, MINNESOTA.

## SEWING-MACHINE NEEDLE.

No. 879,608.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed October 4, 1907. Serial No. 395,822.

*To all whom it may concern:*

Be it known that I, ANDREW M. CARLSEN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Sewing-Machine Needle, of which the following is a specification.

This invention relates to sewing-machine needles of the kind which are threaded by placing the thread sidewise into the eye of the needle, for which purpose the eye has a side-opening covered by a spring or flexible arm extending from a point below the eye to a point considerably above the same. As far as I am aware, needles of this class heretofore constructed are all without any support to meet the end of said flexible arm so as to prevent the needle from breaking or bending toward the side weakened by the side opening of the eye. The main object of my invention is to provide such a support for the flexible arm; and a further object is to provide improved means for guiding and supporting said arm against lateral displacement. These and other objects I attain by the novel construction and arrangement of parts illustrated in the accompanying drawing, in which;—

Figure 1 is a side elevation of a sewing-machine needle embodying my improvements and the needle bar of a sewing machine indicated in dotted lines. Fig. 2 is a top view of the needle in Fig. 1. Fig. 3 is a left side view of the upper part of Fig. 1. Fig. 4 is the upper portion of the spring arm in Fig. 1, showing the side of it that goes next to the needle. Fig. 5 is a vertical central section on the line *a—*a** in Fig. 3. Fig. 6 is a cross section on line *b—*b** in Fig. 1 showing how the thread passes between the needle and the flexible arm. Fig. 7 is a modification of Fig. 6. Fig. 8 is a side elevation of the upper part of the needle with the improvements modified. Fig. 9 is a left side view of the needle only in Fig. 8. Fig. 10 represents the upper and lower spring arm in Fig. 8, looking at them from the side nearest the needle. Fig. 11 is another modification, and Fig. 12 is an inverted view of the arm 11<sup>b</sup> in Fig. 11.

Referring to the drawing by reference numerals, 1 designates a sewing machine needle of usual construction, having an enlarged shank 2 adapted to be held in the needle-bar of the sewing machine, and near its point an eye 3 that is open at one side of the needle

and is covered by a spring-arm 4, which is fastened to the needle below its eye by welding, soldering or riveting, or may be made integral with the needle.

The spring arm may be of any desired form in cross section but its upper end or face 5 is at right angles with the sides of the arm so as to take a firm hold of the angular shoulder 6 of the needle, and thereby prevent bending of the needle toward the side that is weakened by the side-opening in the eye.

Upon the outer side of the upper end of the arm is either formed or secured a guide 7, whose segmental edges 8 are curved toward the sides of the needle (as best shown in Fig. 6); and the upper end 9 of the guide thus formed stands away from the needle shank sufficiently for the thread to enter downwardly between it and the needle and by acting on the edges 8 force the spring arm outward and let the thread slip sidewise down between the arm and the needle in threading it. It being understood that the thread during the threading process is held stretched like 10 in Fig. 6, where it will be seen that the curved edges 8 of the guide cause the thread to pass the end 5 of the spring arm and after passing it the arm springs back in under the shoulder 6 of the needle. Into the latter position the arm is brought and held partly by its own spring force and partly by a second spring arm 11, which is secured in a groove 12 in the shank, preferably by overpressed burrs 13 of the shank, but it may also be fastened by other means. Said groove 12 is deeper than the thickness of the arm so as to allow the arm to vibrate freely when the shank is inserted in the needle bar 14, shown in dotted outlines in Fig. 1. The lower end of spring arm 11 rests normally in a notch 15 in the upper end of the guide to permit the thread, in threading the needle, to enter upward from the position 10<sup>a</sup> to 10<sup>b</sup> in Fig. 1; from which position it is forced down as already described. During such upward movement of the thread the arm 11 is sprung outward and the upward movement of the thread is limited by a shoulder 17 on the arm and then brought downward. The upward movement may also be stopped by a shoulder 20 on the shank (see Fig. 8). The arm 11 thus serves four purposes; it stops the upward movement of the thread, it helps to close the spring arm, helps to hold it closed, and it prevents lateral displacement of it when it is sprung away from the needle.



In the modification Fig. 7 is shown that the edges 8 of guide 7 may be closer together by forming clearings 18 for them in the needle shank.

5 In Figs. 8, 9 and 10 is shown how the needle instead of having one shoulder 6 may have two shoulders 6<sup>a</sup>; and the arm 4<sup>a</sup> (in Fig. 10) may have two angular shoulders 5<sup>a</sup> to engage said shoulders 6<sup>a</sup> in Fig. 9, and the  
10 guide 7<sup>a</sup> is in the middle so as to pass into a groove 19 in Fig. 9. In Fig. 8, where Figs. 9 and 10 are assembled, it will be seen that the thread must press on a single edge 8<sup>a</sup> of guide 7<sup>a</sup>, situated between the shoulders 5<sup>a</sup>,  
15 instead of the two edges 8 in Figs. 6 and 7. In said modification I have also shown, in Figs. 8 and 10, that the upper spring arm may have a groove 15<sup>a</sup> by which to engage the guide 7<sup>a</sup> and thus guide the upper end of  
20 the arm 4 instead of the notch 15 in Fig. 4 for the upper arm to engage for the same purpose. In either case there is a guiding engagement of the two spring arms.

In Fig. 11 the upper arm 11<sup>b</sup> is rigid and  
25 has a shoulder 6<sup>b</sup> to resist the end of the spring arm 4<sup>b</sup>, and edges 8<sup>b</sup> to guide the thread past the shoulder as it springs arm 4<sup>b</sup> toward the needle in passing upward.

In Fig. 12 22 are converging faces for  
30 guiding the spring arm 4<sup>b</sup>.

Having thus described my invention, what I claim is:—

1. The combination of a sewing-machine  
35 needle having an open-sided eye, a spring arm extending from below the eye and closing the side thereof; said spring arm extending toward the shank of the needle, and the needle having an angular shoulder adapted to meet and resist the end of the spring arm  
40 when the latter is in normal position; a guide fixed on the upper end of the spring arm and having its upper end inclined outward from the needle to admit entering of the thread, and one or more guiding edges  
45 projecting toward the needle beyond the end of the spring arm, so as to guide the thread past the end of the arm in moving it downward.

2. The combination of a sewing-machine  
50 needle having an open-sided eye, a spring arm extending from below the eye and closing the open side thereof, said spring arm extending toward the shank of the needle, and the needle having an angular shoulder adapted to meet and resist the end of the spring arm  
55 when the latter is in normal position, a guide fixed on the upper end of the spring arm and having its upper end leaning outward from the needle to admit entering of the thread,  
60 and one or more cam-edges projecting toward the needle beyond the end of the spring arm, whereby the entering thread is guided to pass the end of the arm, and a second or upper spring arm secured in and  
65 guided by a groove in the side of the shank

of the needle and bearing normally upon the outer side of the free end of the first or lower spring arm, said second arm having its lower end projected beyond the point of contact with the lower arm to facilitate the in- 70  
sertion of the thread by simply moving it upward between the two arms and downward between the needle and the guide of the lower arm.

3. The combination of a sewing machine 75  
needle having an open-sided eye, a spring arm extending from below the eye and closing the open side thereof, said spring arm extending toward the shank of the needle, and the needle having an angular shoulder 80  
adapted to meet and resist the end of the spring arm when the latter is in normal position, a guide fixed on the upper end of the spring arm and having its upper end leaning outward from the needle to admit entering 85  
of the thread and one or more cam-edges projecting toward the needle beyond the end of the spring arm, whereby the entering thread is guided to pass the end of the arm, and a second or upper spring arm secured in and 90  
guided by a groove in the side of the shank of the needle and bearing normally upon the outer side of the free end of the first or lower spring arm, said second arm having its lower end projected beyond the point of contact 95  
with the lower arm to facilitate the insertion of the thread by simply moving it upward between the two arms and downward between the needle and the cam of the lower arm, said groove in the shank being deep enough 100  
to permit the upper spring arm to swing in radial direction of the shank also when the latter is held in the needle bar of the sewing machine, and the free end of the upper spring arm having a guiding engagement with the 105  
lower spring bar to prevent lateral displacement of the same.

4. A sewing machine needle having an open-sided eye, a primary spring arm fixed on the needle and covering the open side of 110  
the eye, an angular shoulder on the needle adapted to resist the end of the arm, and an auxiliary spring arm fixed on the needle and normally engaging the primary spring arm to impel it toward its engaging position with 115  
the shoulder, means for readily guiding the thread in between said two spring arms and means for guiding the thread in between the needle and the primary spring arm in threading the needle. 120

5. The combination with a sewing-machine needle having an open-sided eye, of an upwardly extending spring arm fixed on the needle and covering the side opening of the eye, and a downwardly extending spring arm 125  
fixed on the upper part of the needle and normally engaging the outer side of the upper end of the upwardly extending arm, said downwardly extending arm having its end projected beyond the point of contact with 130



the first arm, and having at its inner side above said point of contact of the two arms a shoulder on the downwardly projecting arm to limit the upward movement of the thread, and means carried by the upwardly extending arm for the thread to engage and spring the two arms outward in passing down toward the eye of the needle.

6. A sewing-machine needle having an open-sided eye, a spring arm secured below the eye and extending upwardly so as to cover the side opening of the eye, and means on the side of the needle adapted to resist the end of the spring arm, and guiding means on the spring arm for the thread to engage and spring the arm outward in threading the needle.

7. A sewing-machine needle having an open-sided eye, a spring arm secured below the eye and extending upwardly so as to cover the side opening of the eye and means on the side of the needle adapted to resist the end of the spring arm, and guiding means on

the spring arm for the thread to engage and spring the arm outward in threading the needle, another spring arm fixed to the shank of the needle and resting at the outer side of the upper end of the first arm and projecting beyond the same so as to engage and guide the thread upwardly between the two arms, and means for stopping the upward movement of the thread.

8. A sewing-machine needle having its eye open at one side, a spring arm fixed near the point of the needle and covering the side opening of the eye by extending toward the shank of the needle, means on the needle for resisting the end of the spring arm, and means for guiding the spring arm into engaging position with the resisting means.

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

ANDREW M. CARLSEN.

Witnesses:

D. E. CARLSEN,

E. C. CARLSEN.