No. 775,036. PATENTED NOV. 15, 1904.

E. J. HALL.

SEWING MACHINE NEEDLE.

APPLICATION FILED MAR. 12, 1903. RENEWED APR. 14, 1904.

NO MODEL.

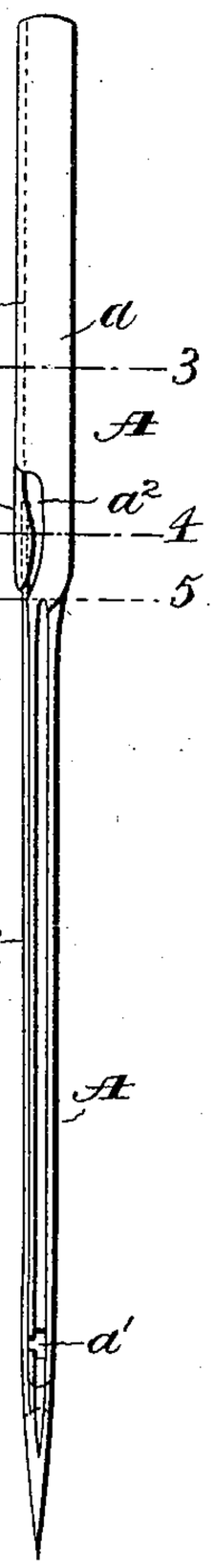


Fig. 1.

Fig. 2.

Fig. 6.

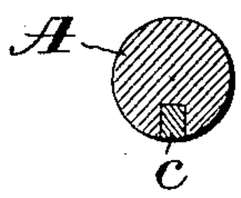


Fig. 3.

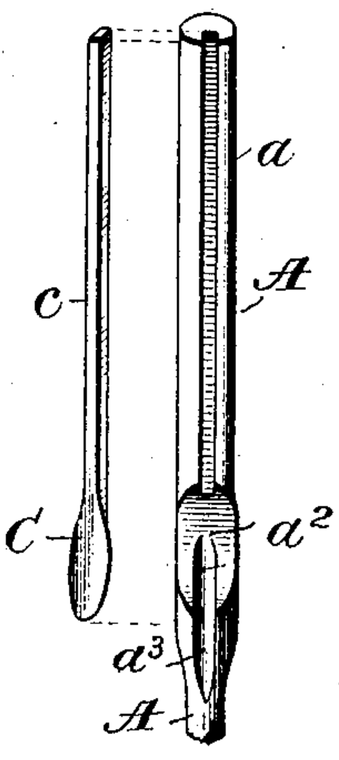


Fig. 4.

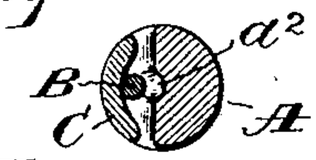
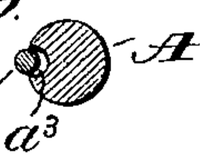


Fig. 5.



Witnesses:
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No. 775,036. Patented November 15, 1904.

UNITED STATES PATENT OFFICE.

EVA J. HALL, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO HALL & CLARK NEEDLE COMPANY, OF MINNEAPOLIS, MINNESOTA.

SEWING-MACHINE NEEDLE.

SPECIFICATION forming part of Letters Patent No. 775,036, dated November 15, 1904.

Application filed March 12, 1903. Renewed April 14, 1904. Serial No. 203,205. (No model.)

To all whom it may concern.

Be it known that I, EVA J. HALL, of Minneapolis, in the county of Hennepin, and in the State of Minnesota, have invented a certain new and useful Improvement in Sewing-Machine Needles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a sewing-machine needle constructed in accordance with my invention. Fig. 2 is a detail view in perspective of the upper portion of said needle. Fig. 3 is a cross-section on the line 3 3 of Fig. 1. Fig. 4 is a cross-section on the line 4 4 of Fig. 1. Fig. 5 is a cross-section on the line 5 5 of Fig. 1, and Fig. 6 is a detail view in perspective of the upper part or shank of the needle and the spring-end protecting hood or cap before being united.

My invention relates to sewing-machine needles constructed for threading without passing the thread endwise through the needle-eye of the class in which the eye of the needle opens out through one side of the needle and is covered by a spring or flexible strip that is fastened to the needle below its eye and has its upper end free and covered by a guard or hood. Needles of this class are shown in my United States Patent No. 467,408, dated January 19, 1892, and No. 471,857, dated March 29, 1892.

The object of my present invention is to provide a construction capable of cheap manufacture, not liable to be deranged in use, and efficiently serving its purpose; and to these ends my invention consists in the needle having the features of construction hereinafter specified and claimed.

The needle A illustrated in the drawings is of the usual construction, having its upper end enlarged in size to form a shank *a* for its attachment to the needle-bar of the sewing-machine and near its lower or pointed end an eye *a'*, that is open at one side of the needle and is covered thereat by a slender strip or spring B, which is fastened to the needle by riveting or otherwise below the eye. For the greater portion of its length above the eye the strip or spring B is flat and thin, and its upper portion is round in cross-section and extends beneath a guard or hood C, attached to the needle-shank *a*. The guard or hood C is attached to the shank by having a slender wire-like extension *c*, that is seated in a longitudinal groove in the side of the needle-shank *a*, the opposite edges of the groove being pinched or compressed over said extension. This mode of attaching the guard or hood to the needle is a cheap one and one by which the guard is most firmly held in place. The outer surface of the guard or cap conforms in shape and size to what would be the shape and size of the shank of an ordinary needle at the corresponding point thereof, and it constitutes no projection apt to catch into objects.

The under or inner side of the guard or cap is concave, so as to overhang the spring end beneath it when the spring is in its normal position, and thereby thoroughly house said end and restrain it from lateral or sidewise movement. Behind or beneath the spring end the shank of the needle is cut away to provide a space or cavity a^2 for the spring end to move into in the operation of attaching a thread between the guard or hood and the spring end and to accommodate the thread after it has passed between the spring end and the guard. A short distance below the guard or cap the needle has a slight depression or groove a^3 adapted to engage the rounded portion of the spring, and thereby restrain or hold the latter from lateral movement.

The operation of my needle in threading is as follows: As is customary in threading needles of this description, the thread is held against the side of the spring and carried upward between the upper end of the spring and the guard or cap, the upper end of the spring yielding or pressing inward into the space or cavity behind it, the pressure to which it is subjected confining it in the groove a^3, so that though it may be free from the overhanging sides of the guard or cap the sides of said groove will prevent it moving sidewise. The sides of the groove thus constitute means to engage the spring when the

latter is moved inward away from the guard. The thread being carried past the upper end of the spring the latter will move outwardly into contact with the guard or hood, leaving the thread free in the cavity or space a^3, from which it can be carried down between the spring and the needle until it enters the needle-eye.

Having thus described my invention, what I claim is—

1. The combination of a needle having an open-sided eye, a spring for closing the open side of the eye having one end free, a guard for the free end of the spring that engages such end when the spring is in normal position and acts to restrain the spring from sidewise movement, and means on the needle beyond the guard to engage the spring and hold it from lateral movement when it is carried out of contact with the guard by the thread in a threading operation, the spring being thus at all times restrained from sidewise displacement.

2. The combination of a needle, having an open-sided eye, a spring for closing the open side of the eye, having one end free, a guard for the free end of the spring overhanging the sides thereof, the needle having a notch or recess behind the guard-engaging portion of the spring, and having a groove to receive the spring at a point beyond the guard.

In testimony that I claim the foregoing I have hereunto set my hand.

EVA J. HALL.

Witnesses:
LOUIE BRUNSWICK,
SAM J. LEVY.