

(No Model.)

E. N. GAILLARD.

COMBINED NEEDLE AND CORD AND MODE OF UNITING THE SAME.

No. 362,374.

Patented May 3, 1887.

Fig. 1.

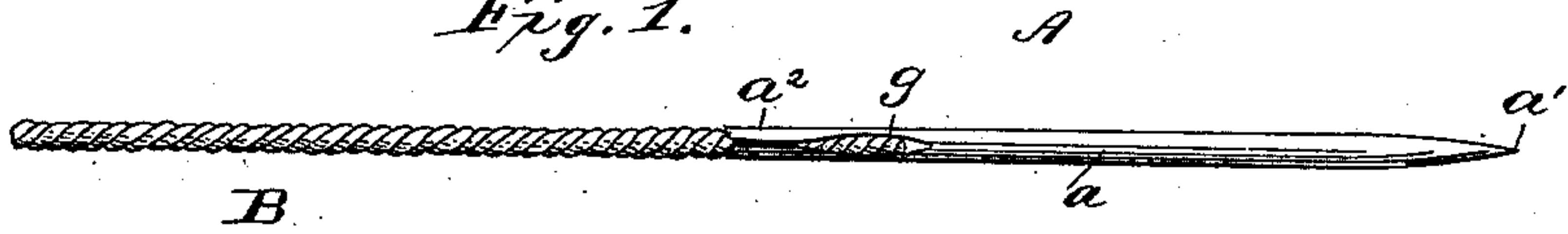


Fig. 2.

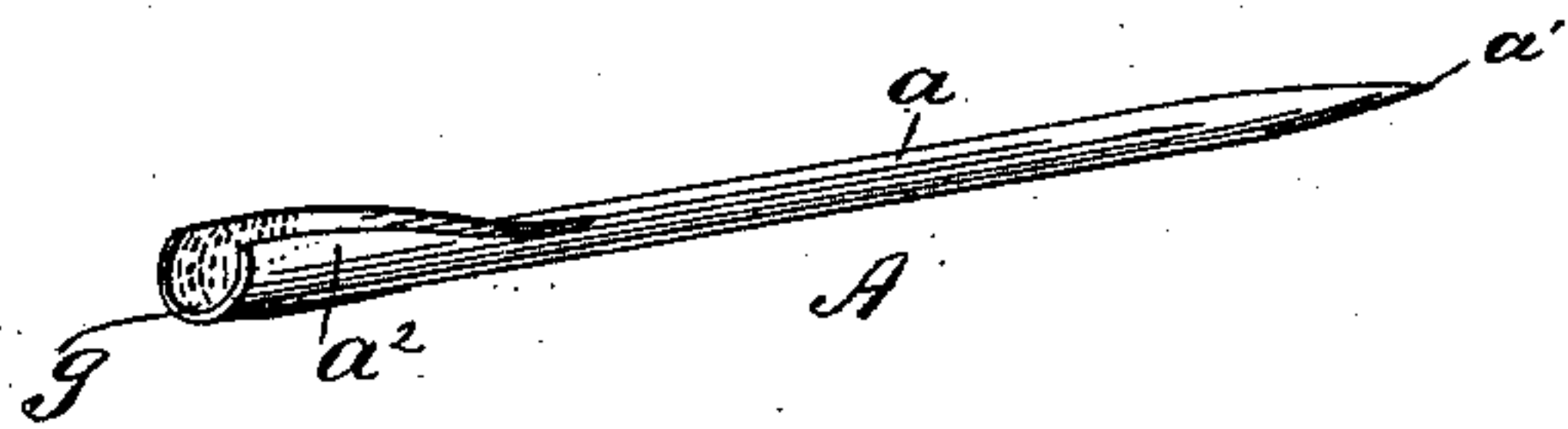


Fig. 3.

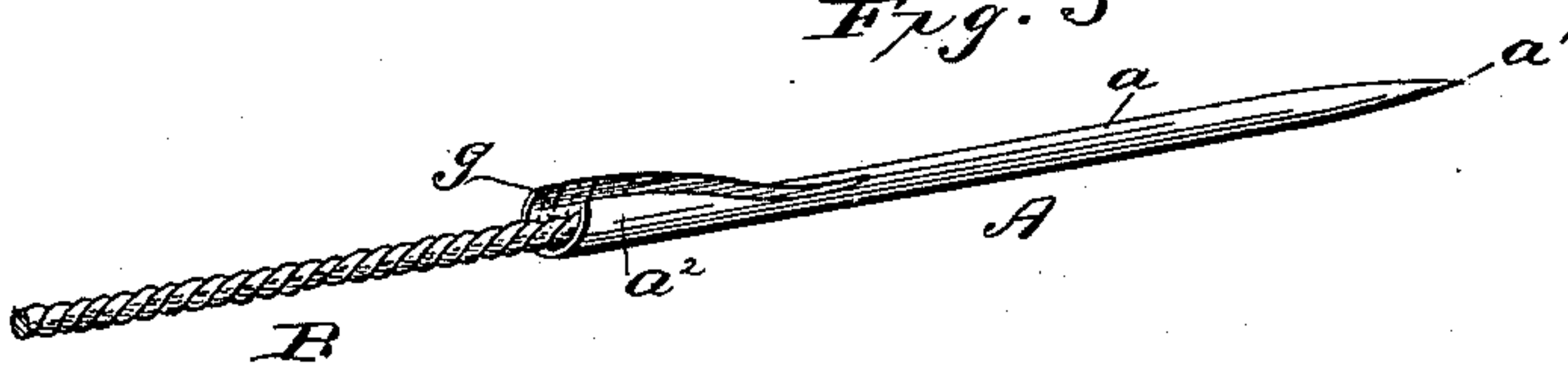
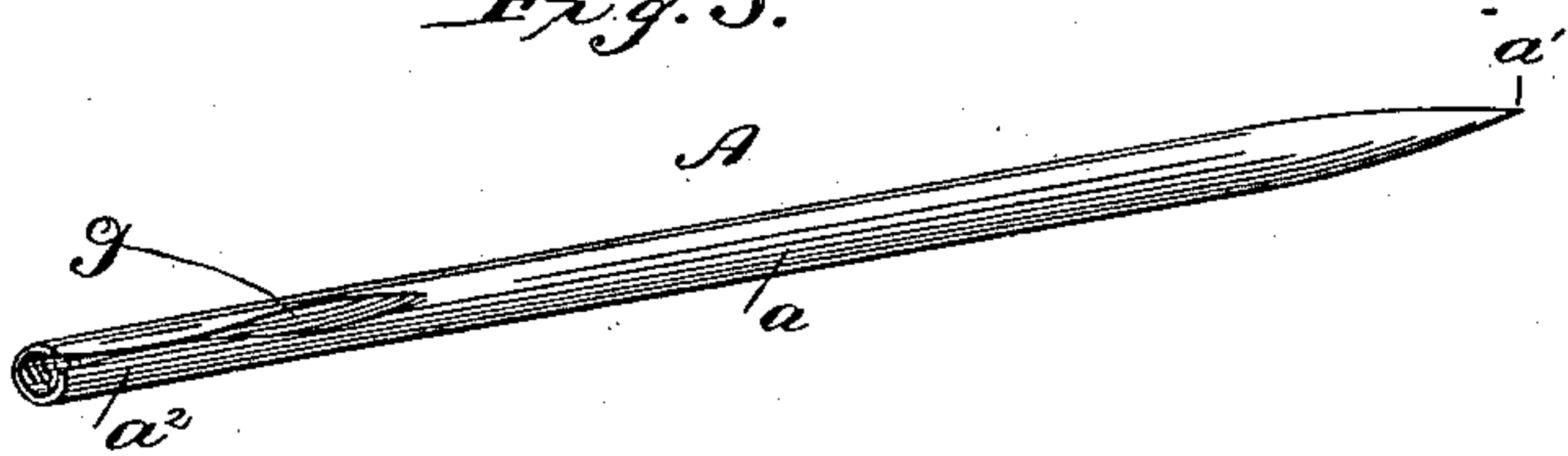


Fig. 4.



Fig. 5.



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ELLA N. GAILLARD, OF NEW YORK, N. Y., ASSIGNOR TO ERNEST MARX,
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COMBINED NEEDLE AND CORD AND MODE OF UNITING THE SAME.

SPECIFICATION forming part of Letters Patent No. 362,374, dated May 3, 1887.

Application filed May 20, 1886. Serial No. 202,789. (No model.)

To all whom it may concern:

Be it known that I, ELLA N. GAILLARD, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Needles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to certain improvements in the structure and method of manufacturing needles of the character forming the subject-matter of Patent No. 149,034, granted to me March 31, 1874. In said patented invention the attachment between the needle and cord was effected by forming a longitudinal threaded socket in the end of the needle, into which the end of the cord or other material was inserted. In practice it was found that in order to properly secure the needle to the thread or cord by this means the threaded socket had to be made of such dimensions as to greatly weaken the rear end of the needle. Moreover, great difficulty was experienced in the manufacture of said needles, owing to the fact that each needle had to be first drilled longitudinally and the threads formed therein, during which operations the needle was liable to be broken or split and thus destroyed or rendered incapable of maintaining its hold upon the cord when attached thereto. To overcome these difficulties, incident alike to the structure and method of manufacture, and at the same time to preserve the advantages and improve the article itself, is the object of my present invention, which latter consists, essentially, in forming the socket in the rear end of the needle by first forming a longitudinal groove in the end of the blank, and preferably by compression; secondly, inserting or laying the end of the cord in said groove, and, thirdly, bending the edges of the grooved portion over and upon the cord, thereby forming the longitudinal socket and at the same time securing the end of the cord therein.

The said invention also embraces the formation of screw-threads or projections upon the inner walls of the socket by and during the operation of forming the longitudinal groove, thereby giving additional strength to what must necessarily be the weakest portion of the

needle, at the same time insuring the retention of the cord in the socket formed, and permitting the needle to be renewed, as by unscrewing it from the cord, to be used as described in my before-mentioned patent.

The invention also embraces the improved form and construction of the needle made in this way.

In the accompanying drawings, Figure 1 represents my improved needle as applied to the thread or cord and ready for use. Figs. 2, 3, and 4 illustrate different steps in the process of manufacture. Fig. 5 is an enlarged view of the needle detached from the thread or cord.

Similar letters in the several figures represent the same parts.

My improved needle A consists of the body portion a , of substantially uniform diameter, provided at one end with a point, a' , and at the other with a socket, a^2 , for the insertion and retention of the cord or thread B, which latter is of substantially the same diameter as the body a of the needle.

It is desirable that the attachment between the cord B and needle A at the socket should be strong enough to prevent the cord from being detached when the needle is forced through the material, and at the same time the needle should not be so weakened as to be readily broken in drawing the cord. It is, moreover, desirable that the diameter of the needle should not materially, if at all, exceed that of the cord, and, further, that the needle should be free from loose or projecting corners or edges, which, by catching against the material to be sewed, operate to weaken the attachment and permit the needle to be drawn off from the cord.

While my patented needle embodies some of these desirable features, it is found in practice that the needle is unduly weakened at the rear or socket end in the manufacture, and the attachment to the cord is not so permanent and secure as desired; hence, to overcome these and other defects, instead of drilling the end of the needle to form the socket, and subsequently forming therein the retaining-ridges, projections, or threads, I first reduce the end of the blank between dies or otherwise to form a longitudinal groove, g , said reduced portion being made concavo-convex in cross-section, with the

center of the concave side at or below the longitudinal center of the blank, as shown in Fig. 2.

If, as is preferred, the socket is to be provided with retaining-points, projections, or screw-threads, they are formed on the inner surface of the concave portion by or during this preliminary swaging of the blank, as shown by dotted lines in Fig. 2. The longitudinal groove thus formed in the end of the blank is of such depth and dimensions relative to the diameter of the needle and the cord to which it is to be applied as that when the end of the cord is placed therein, as shown in Fig. 3, and the sides are bent around and closed down upon the cord, as shown in Fig. 4, which is done in dies, under a hammer, or by drawing through a die-plate, as will be readily understood, the socket will be perfectly formed and the end of the cord will be tightly clasped therein without unduly increasing the diameter of the rear end of the needle or weakening the socket or the attachment to the cord, while the edges of the socket portion, lying parallel with the body of the needle, will not offer any opposition to the passage of the needle through the material to be sewed, nor form edges that can catch upon the latter and thereby assist in effecting the separation of the needle from the cord.

By forming screw-threads upon the inner surface of the socket, as hereinbefore described, not only is the manufacture greatly facilitated and all liability of breaking the socket during the operation of tapping the latter (as in my prior patent) avoided, but a much cheaper and stronger article is produced, possessing all the advantages of my prior patented invention. Moreover, the threads thus formed serve to strengthen the socket and prevent the latter from bending or crushing when in use.

Having thus described my invention, what I claim as new is—

1. The herein-described article of manufacture, consisting of a combined cord and a solid-

bodied needle, the same comprising a cord clamped within the grooved end of the needle and having the edges of said inclosing end lying in the direction of the length of the needle and offering no obstruction to the passage of the latter through the material, substantially as described.

2. The herein-described article of manufacture, consisting of a combined cord and a solid-bodied needle, the same comprising a cord clamped within the grooved and internally-roughened end of the needle, the inclosing-edges of said end lying in the direction of the length of the needle and offering no obstruction to the passage of the latter through the material, substantially as described.

3. The herein-described improved method of forming needles and securing cords thereto, as described, which consists in first swaging the end of the blank to spread the metal and form the longitudinal groove; secondly, placing the end of the cord in said longitudinal groove; thirdly, bending the metal at the sides over and upon the cord with the edges substantially parallel with the body of the needle, and finally compressing and reducing the socket so formed, as and for the purpose set forth.

4. The improved method of manufacturing needles and attaching cords thereto, as herein described, which consists in forming the concave longitudinal groove on one side of the end of the blank and at the same time upsetting projections or screw-threads upon the surface thereof; secondly, inserting the end of the cord in said groove, and finally bending the opposite sides of the grooved portion over upon the cord to clasp the latter and embed the projections or screw-threads, substantially as described.

ELLA N. GAILLARD.

Witnesses:

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