

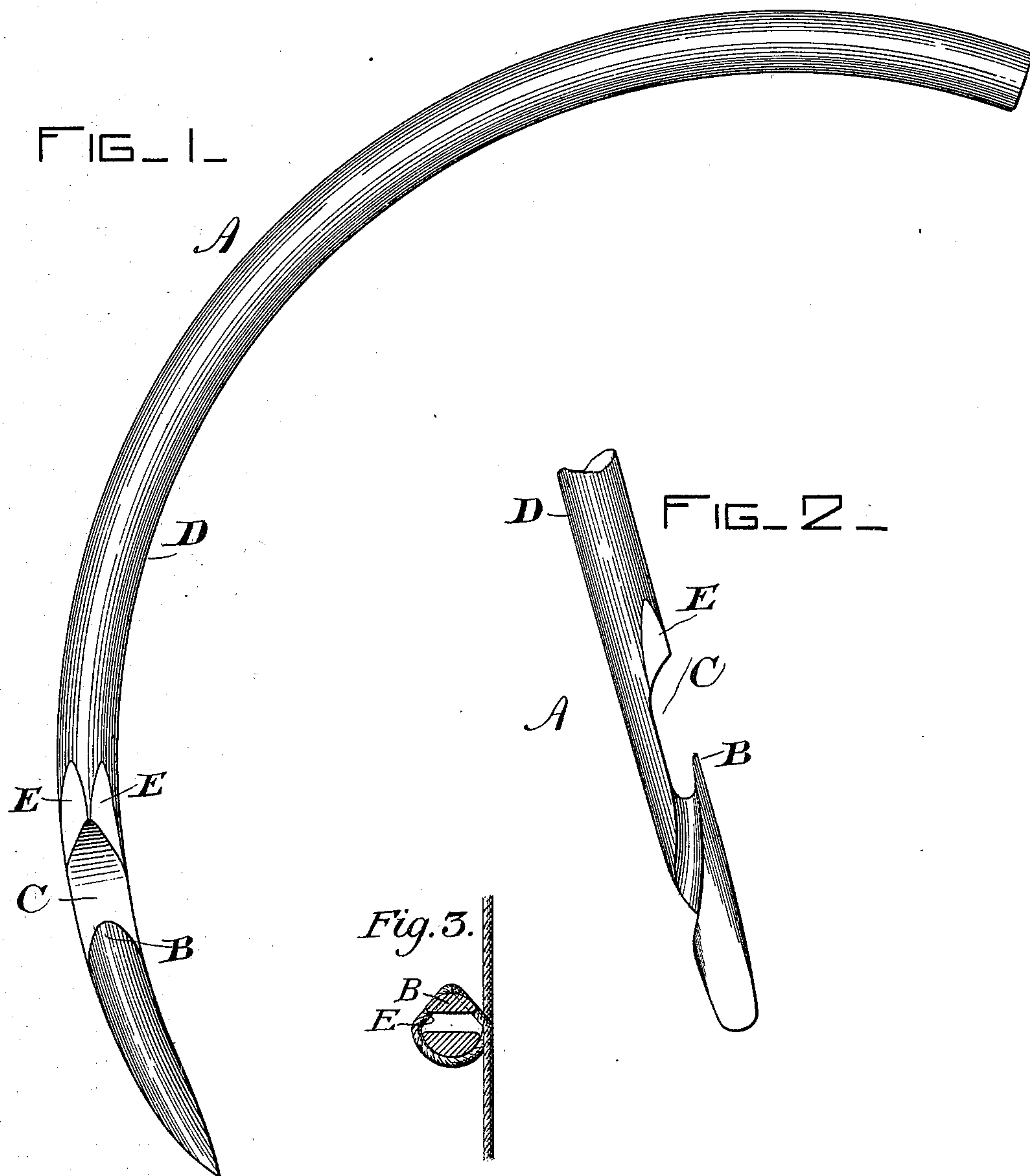
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Patented Apr. 23. 1901.

W. H. McLEOD.
SEWING MACHINE NEEDLE.

(Application filed Dec. 3, 1897.)

(No Model.)



WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM H. MCLEOD, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE NEEDLE.

SPECIFICATION forming part of Letters Patent No. 672,682, dated April 23, 1901.

Application filed December 3, 1897. Serial No. 660,675. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. MCLEOD, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, 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 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates more particularly to that class of needles commonly called "hooked" needles, in which the thread is carried in a hook formed near the point of the needle, such needles being commonly used in several types of sewing-machines and almost universally in welt and sole sewing machines.

In the class of needles above designated the thread enters the hook through what is commonly termed the "throat," which is a recess formed by cutting away the shank of the needle to a sufficient distance back of the hook to allow the loop of thread which is drawn around the needle to fall into the throat and be properly engaged by the hook. Where needles of this class have been used in rapidly-running sewing-machines, particularly in rapidly-running welt and outsole sewing machines, it has been found necessary to make the throat of considerable length to insure the entry of the thread therein, since the rapidly-retracting needle tends to carry the throat by the loop before the loop can be drawn into the same. To form the throat, as above stated, it is necessary to cut away so much of the shank that the needle structure is materially weakened along the throat, a fracture of the needle in practice almost invariably occurring in that portion thereof.

The present invention has for its object to obviate the difficulty above noted and to provide a more durable needle structure, at the same time insuring the proper engagement of a loop of thread by the hook; and to the above end it consists of a needle having a short throat and a portion of the shank immediately back of the throat slightly reduced in cross-sectional area by chamfering the shank, so that the hook of the needle projects laterally slightly beyond such reduced portion and

operates efficiently to catch the thread on its backward movement.

The accompanying drawings illustrate the present invention as applied to a circular needle with the hook at the side, such as is commonly used in the Goodyear welt-machine; but such particular type of needle is selected merely as a convenient concrete illustration of the present invention, which is equally applicable to needles having a hook upon the front or back or upon the opposite side to that of the needle structure shown.

In the drawings, Figure 1 is a front view of a needle embodying the present invention. Fig. 2 is a side view taken on the side of the hook; and Fig. 3 is a transverse section of the needle, taken through the barb and looking toward the chamfered portion of the shank, showing also the thread wound on the shank of the needle in the position which it occupies just preparatory to the retracting motion of the needle.

Similar letters of reference indicate like parts in the several views.

It may be stated in this connection that the several views of the drawings are slightly exaggerated in size and proportion to facilitate a more clear understanding of the principle of the present invention, with a knowledge of which any person of average skill in the art can apply my invention either to the specific form of needle shown or to any other suitable form of needle.

To more particularly describe the specific construction illustrated in the drawings, A represents a curved or circular needle, having the hook B formed on the side thereof adjacent its point and having back of the hook B a short flattened throat C, formed by cutting away the shank D back of the hook B.

In accordance with the present invention I chamfer the sides of the shanks at E immediately back of the throat. This is the portion of the shank about which the thread is wound by the looper, and since the chamfered surfaces are nearer the axis of the needle than the normal surface of the shank the thread is the more easily caught by the hook of the needle. In other words, the hook of the needle may be said to project laterally beyond parts of the chamfered surfaces,

so that the thread wound thereon will certainly be caught by the hook. This is clearly shown in Fig. 3. By the present construction of needle the throat C of the needle is
5 shortened, and the throat is thereby greatly strengthened and the liability of the hook to catch in the material is materially diminished. The chamfering of the shank adjacent to the throat secures the certain engagement of the
10 thread by the hook without sacrificing strength where strength is most needed.

I may say that I prefer to reduce the sectional area of the portion E, as before referred to, by chamfering or beveling off the
15 shank of the needle back of the throat C and on the same side as said throat until a partial section taken at the rear end of the throat on the side of the hook would approximate a triangle, the side being, perhaps, very
20 slightly curved.

The operation of my improved needle, as shown in the drawings, is as follows: The thread which is laid against or wound around the chamfered portion of the needle-shank
25 takes the form of the shank at that point, so that as the needle is retracted the portions of the thread conforming to the chamfered shank are nearer the axis of the needle than the normal surface of the shank and cannot
30 jump over the throat and escape being caught

by the hook, however rapidly the machine may be running. It is to be observed that the chamfers of the shank are not under the hook of the needle, but back of the throat, and that in the operation of my improved
35 needle the thread is laid against or wound on the chamfered portion of the shank and in such position that if the thread lying against the chamfered parts were not to have any
40 motion toward the axis of the needle as the needle retreated and brought the throat thereunder, still would the thread be caught by the hook of the needle because of the relative position of the chamfered surfaces and
45 the hook to the axis of the needle.

Having thus described my invention and its mode of operation, I claim as novel and wish to secure by Letters Patent of the United States—

A sewing-machine needle having a hook, a
50 short flattened throat and a shank chamfered immediately back of said throat, substantially as described.

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

WILLIAM H. McLEOD.

Witnesses:

T. HART ANDERSON,
A. E. WHYTE.