

June 23, 1936.

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2,045,268

KNITTING NEEDLE

Filed Feb. 3, 1934

2 Sheets-Sheet 1

Fig. 1.

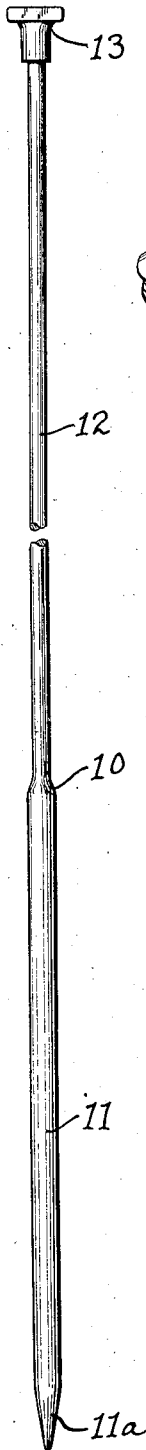


Fig. 2.

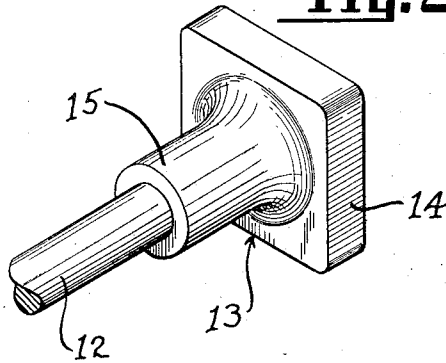


Fig. 3.

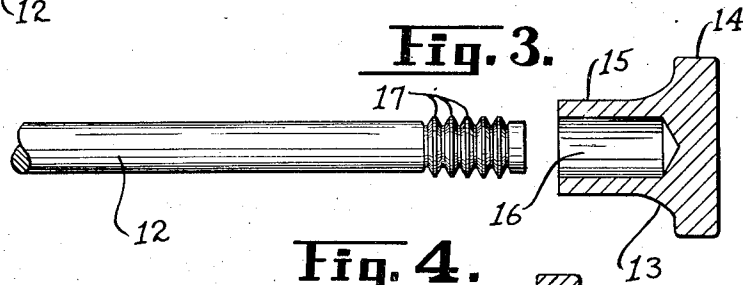


Fig. 4.

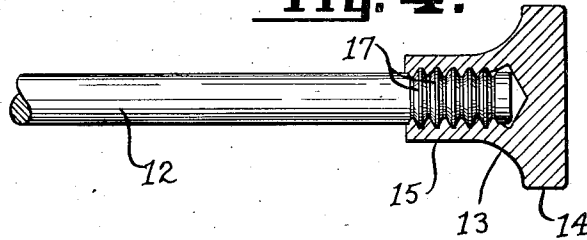


Fig. 5.

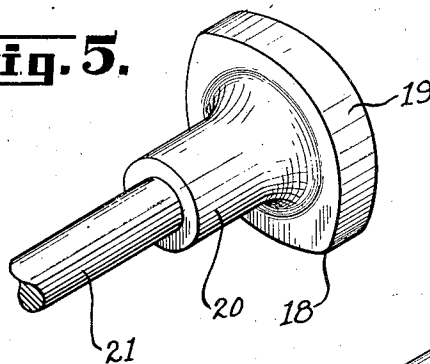
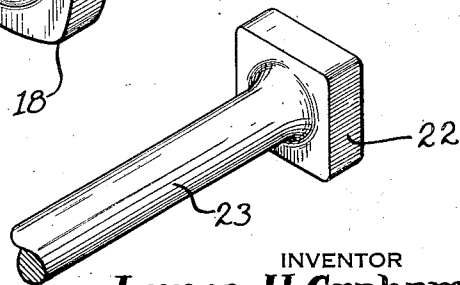


Fig. 6.



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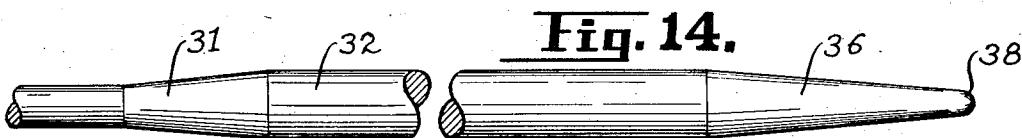
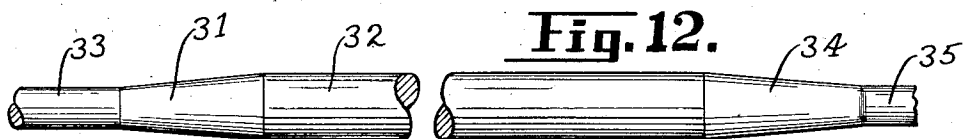
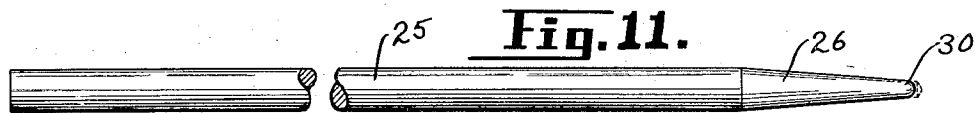
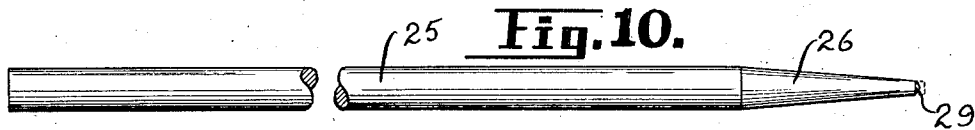
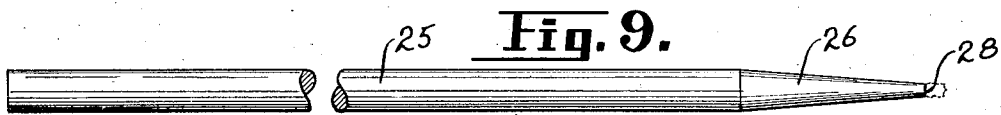
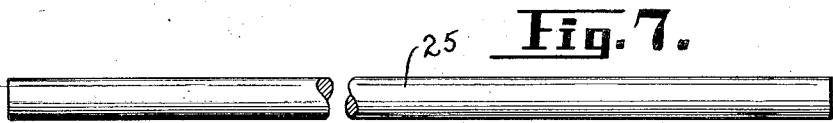
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KNITTING NEEDLE

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Application February 3, 1934, Serial No. 709,653

1 Claim. (Cl. 66—117)

This invention relates to knitting needles, and more particularly to a straight knitting needle having means for preventing it from rolling when placed on an inclined surface, and to the method of manufacturing the same.

One object of this invention is to provide a knitting needle of the above nature in which the rolling is prevented by a non-circular head located on the end of the needle shank opposite from the needle point.

A further object is to provide a knitting needle of the above nature having means for permanently anchoring the head on the needle shank.

A further object is to provide an improved method of forming the conical point on the knitting end of the needle which involves a series of swaging steps with the minimum amount of grinding.

A further object is to provide a knitting needle of the above nature which will be simple in construction, inexpensive to manufacture, light in weight, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view, there have been illustrated on the accompanying drawings, several forms in which the invention may be conveniently embodied in practice.

In the drawings:

Fig. 1 is a side elevation of the first form of knitting needle embodying the invention.

Fig. 2 is an enlarged perspective view of the non-rolling needle head of the same.

Fig. 3 is a view on an enlarged scale of the needle shank and head of the same in separated relationship.

Fig. 4 is a similar view of the same, showing the members in assembled relationship.

Fig. 5 is an enlarged fragmentary perspective view of a knitting needle having a modified form of non-rolling head.

Fig. 6 is a perspective view of a needle having a non-rolling head formed integral with the shank thereof.

Figs. 7 to 11 inclusive illustrate the various steps in the method or process of forming the conical knitting point on the end of a small size knitting needle.

Figs. 12 to 14 inclusive illustrate some of the steps in the process of forming the conical point of a larger size knitting needle.

Referring now to the drawings in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a straight knitting needle comprising a knitting body 11 having a conical point 11a and an

integral reduced elongated rear shank 12. Attached to the end of the needle shank 12 is an enlarged head 13 preferably of malleable material, which is formed of non-circular shape so as to prevent the needle 10 from rolling when placed on an inclined flat surface.

The shape of the head 13 and the manner of attaching the same to the end of the shank 12 is shown in detail in Figs. 2, 3, and 4. The head 13 comprises a square-shaped body portion 14 having a reduced cylindrical boss 15 formed integral with the underside thereof. The boss 15 is provided with a concentric socket or hole 16 extending to substantially the full depth of said boss 15, and adapted in its original shape to be slidably fitted over a series of circular spaced rings 17 formed integrally upon the end of the needle shank 12.

The rings 17 are rolled upon the end of the shank 12 and are preferably made of a shape similar in cross-section to the shape of the U. S. standard thread. It will be understood, however, that instead of employing circular rings of this shape, helical threads or any other form of mutilation may be employed within the scope of the invention.

The head 13 is preferably made of malleable metal and in assembling it to the shank 12, the hollow boss 15 will first be slipped over the rings 17 as stated above, and then forced inwardly upon the rings 17 by pressure in rolls or dies. The metal of the boss 15 will thus be forced into the V-shaped grooves included between the several rings 17, thus assuring that the head 13 will be anchored on the needle shank 12. If desired, the several rings 17 may be made slightly out-of-round so as to prevent lateral twisting of the head 13 when assembled thereupon.

In the modified form of the invention shown in Fig. 5, a non-rolling head 18 of malleable metal is shown as having a body portion 19 in the form of an elongated ellipse and having a socketed boss 20 for attachment upon a needle shank 21 as in the first form of the invention.

A further modified form of the invention is illustrated in Fig. 6, wherein a head 22 is formed square-shaped, and made integral with the end of a needle shank 23.

The method of forming the conical point upon the end of the body of the knitting needle is illustrated in Figs. 7 to 11 inclusive, which show the several successive steps of manufacture of a small size knitting needle.

The first step in the process of forming the needle point is to cut off an elongated blank from

a coil or bar of round stock 25 to a predetermined length as shown in Fig. 7.

5 The second step in the operation consists in placing one end of the blank in a cold swaging machine having dies of the proper shape to form a substantially elongated conical point 26, as shown in Fig. 8. In this operation, the tip end 27 of the conical point 26 will be extruded into a very uneven and irregular shape.

10 The third step consists in clipping or grinding off the irregular tip end 27 of the point 26 to a predetermined length by a transverse cut, as indicated by the line 28 in Fig. 9.

15 The fourth step consists in beveling the tip end of the conical point to produce a flat angle conical tip 29 as shown in Fig. 10. This may be accomplished by the use of a grinding machine, not shown, in combination with a jig fixture, not shown, to establish the proper bevel. The grinding may also be done without the use of a jig when performed by a skilled operator.

20 The fifth and last step of the process consists in buffing the previously formed conical tip 29 of the point 26 on a buffing wheel with a suitable cutting rouge or compound to produce a smooth rounding substantially spherical tip 30, thus completing the needle point 26 (see Fig. 11).

25 It is to be understood, however, that under certain circumstances it is within the scope of this invention to combine the third and fourth steps into one operation, that is of grinding off the irregular end 27 of the point 26 directly down to the flat angle conical tip 29 without the necessity of cutting off the irregular tip 27.

30 The process of forming a similar shaped knitting point on a larger type of needle is illustrated in Figs. 12 to 14 inclusive, wherein a needle 31 is shown having an enlarged cylindrical body section 32 and an integral elongated reduced shank 33. The first step in the operation is that of cutting off a blank from a bar of round stock of the proper length and diameter in the same manner as indicated by Fig. 7 for the smaller size of needle.

35 The second step in the process consists in placing one end of the blank in a cold swaging machine to form the end of the blank into frusto-

conical section 34 terminating in a short reduced cylindrical section 35 (see Fig. 12).

5 The third step consists of a secondary swaging operation wherein the cylindrical section 35 is further reduced with suitable dies, not shown, to cause said section 35 to be formed into conical shape forming an extension of the frusto-conical section 34 to produce a smooth elongated conical point 36 terminating in an irregular tip end 37, as shown in Fig. 13.

10 The succeeding steps in the process will be the same in all respects as those shown in Figs. 9, 10, and 11 for the smaller size needle. Thus, a conical knitting point 36 having a spherical tip end 38 will be produced, as shown in Fig. 14.

15 It is to be understood that three or more swaging operations may be employed, if desired, to form a point of the proper requirements upon the blunt end of the needle instead of the two step process herein illustrated.

20 One advantage of producing a needle by the above method is that the point is made harder and tougher, and has more wear resistance than would be the case where the point is formed by grinding alone.

25 While there have been disclosed in this specification several forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claim.

30 Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

35 In a knitting needle, a straight shank having a plurality of parallel non-circular rings formed on one end thereof, and a head having a non-circular anti-rolling section and a reduced tubular boss fitted over said rings, said boss being squeezed inwardly into permanent interlocking engagement with said rings.

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