

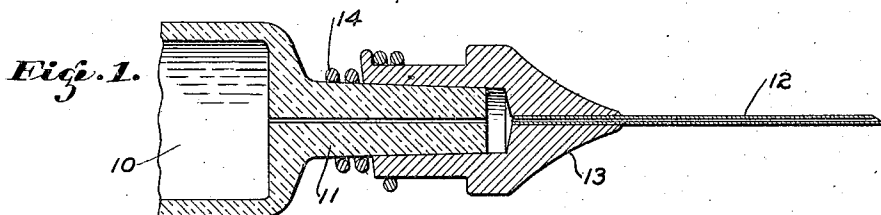
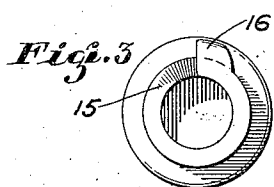
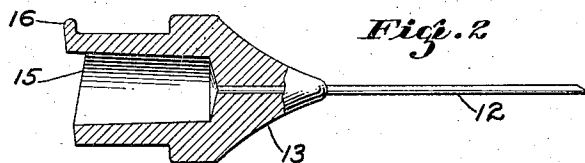
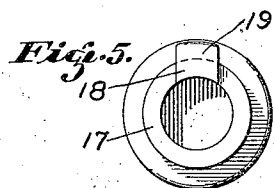
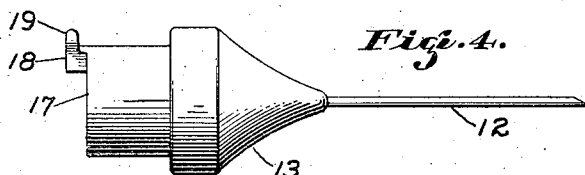
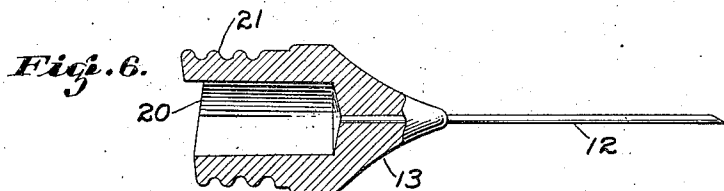
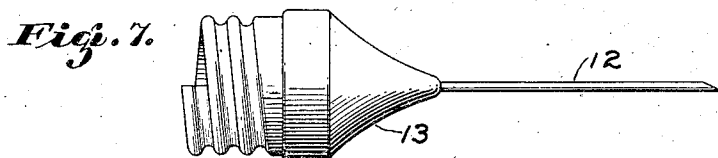
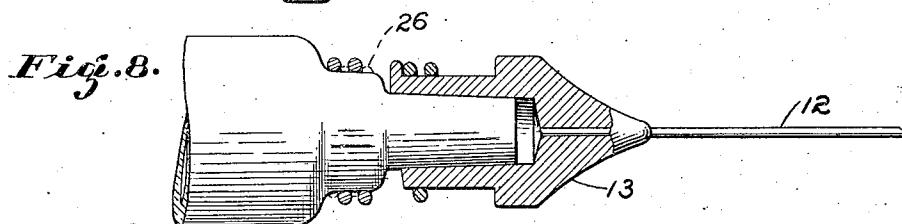
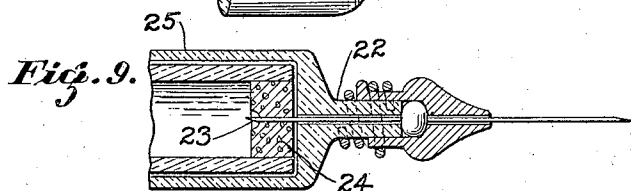
Oct. 4, 1927.

1,644,657

G. N. HEIN

HYPODERMIC NEEDLE

Filed Oct. 12, 1925



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HYPODERMIC NEEDLE.

Application filed October 12, 1925. Serial No. 61,877.

This invention relates to hypodermic needles, and more particularly to means and methods for locking the needle to the nozzle of the syringe.

5 The so-called Luer syringe, that is, one having a glass barrel with a tapered slip-joint fit between the nozzle and the needle, is used extensively in administering hypo-
10 dermic injections. Due to the use of the tapered slip-joint a needle is liable to become loose under exceptional pressures and thus permit the solution to escape or the needle to be forcibly blown off, increasing possibi-
15 lities of accidents.

15 In my Patent No. 1,524,242, granted January 27, 1925, I show and describe a lock for hypodermic needles, which lock is in the nature of a helical spring.

The present invention is concerned particularly with the provision of a needle base or socket which is especially adapted for the type of lock shown in said patent. In this
20 patent I show a conventional type of needle base, whereas in the present application I have provided a needle base of special form, characterized by an axial and circumferential projection on the end of the base to enter between the coils of the spring so as to facilitate fitting and locking the parts to-
25 gether.

In the accompanying drawings:

Fig. 1 shows a longitudinal, central, sectional view of a portion of the syringe and needle embodying my invention.

35 Fig. 2 shows a longitudinal, central, sectional view of the base of a needle illustrating a preferred form thereof.

Fig. 3 shows an end view of the base illustrated in Fig. 2.

40 Fig. 4 shows a side elevation of a modified form of base.

Fig. 5 shows an end view of the same.

Fig. 6 shows a central, longitudinal, sectional view of a still further modified form
45 of base.

Fig. 7 shows a side elevation of the base illustrated in Fig. 6.

Fig. 8 shows a central, longitudinal, sectional view of a modified type of syringe
50 nozzle fitted with a needle and locking mechanism embodying my invention.

Fig. 9 shows a form of my improved needle applied to a type having a straight nozzle instead of a tapered nozzle.

55 The usual so-called Luer syringe comprises a barrel 10, usually made of glass,

and a nipple 11, the latter slightly tapered. A needle 12 is secured to a base 13, which base has a tapered socket to receive the nipple. As a means of locking the needle in
60 place, I employ a helical spring 14, preferably tapered. The mode of operation of the locking spring is explained in my aforesaid patent.

The needle base illustrated in said patent
65 is the conventional one, with its end cut at right angles to the axis and preferably provided with a straight bead. The needle base herein disclosed is of special construction and better suited for use with a spring lock
70 of the type mentioned.

As shown in Figs. 1 and 2, the needle base is formed with a helically cut end 15, upon which is a circumferentially projecting lip or thread 16. In Figs. 4 and 5 I show the
75 end of the base indented, as indicated at 17, leaving a protruding portion 18, upon which is a flange or bead 19. In Figs. 6 and 7 I show a base with a helical cut end 20 and the circumference of the base is provided with screw threads 21.
80

In all of these forms the operation is the same, in that the spring is first placed upon the nipple with the small end innermost. The needle base is then fitted over the nipple
85 and turned so that the projecting bead or thread enters between the coils of the spring, and by continued turning the spring is elongated and expanded at its outer end, thus causing the inner end of the spring to contract tightly around the nozzle and grip the same. To remove the needle it is necessary to turn the same in the opposite direction.

The spiral or helical cut on the end of the base brings about a better cooperation between the base and the spring and the circumferential bead located on an axially projecting part of the base enters between the coils of the spring very readily and easily.
90

In the form shown in Figs. 6 and 7 the
100 locking spring may be retained on the needle base permanently, owing to the provision of the number of threads or grooves.

In case it is desired to retain the spring on the nipple rather than on the needle base,
105 threads 26 may be formed upon the nipple adjacent to the barrel and the inner end of the spring seated in these threads.

I have thus far referred only to the so-called Luer syringe, but it is obvious that
110 my improved needle base and lock can be applied to other types of syringes using a

slip-joint. Among such other types is the one shown in Fig. 9 known as the Cook syringe, where a straight nipple 22 is used and the needle 23 passes through a cork 24 into the interior of the barrel 25.

Various changes in the construction and arrangement of the several parts herein shown and described may be employed without departing from the spirit of my invention as disclosed in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A hypodermic needle having a base provided with a smooth bore socket to receive the nipple of a syringe, the end of said base being formed with an axially projecting portion, and a circumferentially projecting portion arranged on the axially projecting part.

2. A hypodermic needle having a base provided with a smooth bore socket to receive the nipple of the syringe, the end of said base being cut on a bias, and a circumferentially projecting member on said end.

3. A hypodermic needle having a base provided with a smooth bore socket to receive the nipple of a syringe, the end of said base being cut helically, and a circumferential bead or thread formed on said helically cut end.

4. A hypodermic needle having a base provided with a smooth bore socket to receive the nipple of a syringe, the end of said base being cut helically and the circumference of said base being provided with helically arranged grooves.

5. In a syringe, the combination of a barrel and nipple, a needle provided with a base having a socket to receive said nipple, a helical spring engaging the said nipple and base for locking the parts together, said base being provided at its end adjacent to the spring with an axial and circumferential projection to enter between the coils of the spring when the base and nipple are turned relatively.

GEORGE N. HEIN.