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B. FRIEDMAN

1,624,327

NEEDLE MOUNTING FOR HYPODERMIC SYRINGES

Filed May 8, 1926

Fig. 1

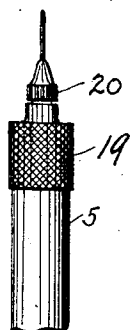


Fig. 2

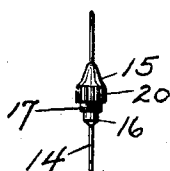


Fig. 4.

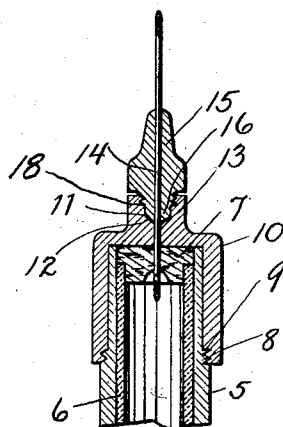


Fig. 3

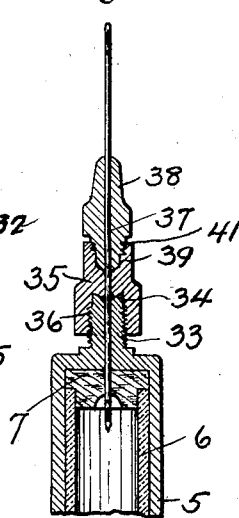
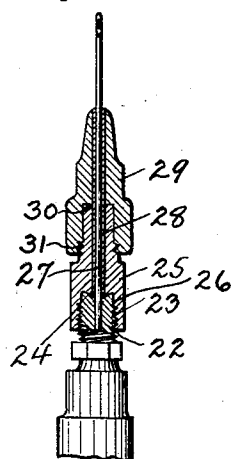
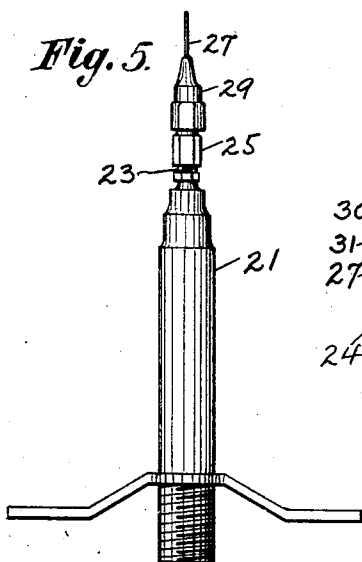


Fig. 6.

Fig. 7.

Fig. 8.

Fig. 5.



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NEEDLE MOUNTING FOR HYPODERMIC SYRINGES.

Application filed May 8, 1926. Serial No. 107,811.

This invention relates to needle mountings and attachments for hypodermic syringes and the like, being particularly adapted to that type of syringe wherein the seal or closure of a capsule or cartridge may be pierced simultaneously with the positioning of the needle.

One of the objects of my invention is to provide a novel and improved leak proof mounting for hypodermic needles capable of attachment to the barrels of various types of hypodermic syringes.

A further object of my invention is to provide a hypodermic needle and mounting or union therefor which may be easily attached to the barrel of a conventional type of hypodermic syringe and wherein the injecting fluid may pass directly through the needle and does not come into contact with any portion of the syringe or the needle mounting, thus producing a leakproof and sterile instrument.

Another object of my invention is to provide a hypodermic needle and mounting therefor adapted for use and connection with the barrel of a hypodermic syringe, in which washers and other leak preventatives are avoided and in which the only portion of the syringe which requires sterilization is the needle itself.

To enable others skilled in the art to fully comprehend the underlying features of my invention that they may embody the same in the various modifications in structure and relation contemplated, drawings depicting a preferred form have been annexed as a part of this disclosure and in such drawings, similar reference characters denote corresponding parts throughout the several views, of which—

Fig. 1 is an elevation of a portion of a syringe barrel showing the needle and needle mounting.

Fig. 2 is an elevation of the needle.

Fig. 3 is an elevation showing the cap or ferrule for the barrel.

Fig. 4 is a sectional view showing the needle and needle mounting in one form of the invention.

Fig. 5 is an elevation of a modified form of the invention.

Fig. 6 is a sectional view showing a needle mounting of the modified form of the invention disclosed by Fig. 5.

Fig. 7 is a still further modified form of syringe barrel and needle mounting.

Fig. 8 is a sectional view of the modified form of the invention shown by Fig. 7.

Referring now to the drawings wherein like reference characters designate corresponding parts throughout the several views, in Figs. 1 to 4 thereof, 5 designates a syringe barrel which is adapted to receive therein a fragile capsule or cartridge 6 containing the liquid or fuel to be injected, said capsule or cartridge having a seal or closure 7 which may be rubber or cork. The end of the barrel is smooth being provided with a few threads as indicated by numeral 8 to receive the end, threaded portion 9 of a ferrule or cap 10. The interior of the ferrule or cap being also smooth may thus fit and slide over the end of the barrel and locked thereto by means of a few threads, and constitutes an abutment for the seal of the capsule or cartridge within the barrel proper.

The ferrule or cap is formed with a socket portion 11 having a concave seat 12 therein with an aperture 13 for the passage of the needle 14. A needle nozzle 15 for the said needle 14 is provided with a convex extension 16 fitting within the concave seat 12 and is threaded as at 17 to engage the threads 18 in the upper portion of the seat above referred to. The ferrule is preferably knurled as indicated by numeral 19 and the needle nozzle is similarly knurled as at 20 to facilitate the threading of the parts on to the barrel. It will be observed also that the needle is adapted to pass through the aperture 13 being of a length to penetrate the seal or closure 7 before the nozzle is threaded to the ferrule.

In the modified form of the invention shown by Figs. 5 and 6, the barrel 21 is provided with a nipple 22 threaded as at 23 and formed with a concave seat 24. Connected to the nipple is a union or nozzle attachment 25 provided with an internally threaded socket 26 which interfits therewith, there being a continuous, aligned passage through the said nipple and union or nozzle for the needle 27. In this form of the invention, the needle is further provided with a sleeve 28 which extends to the seat 24 thus making a leak-proof joint at this portion of the instrument. The needle nozzle 29 and its socket 30 interfits with the union or nozzle attachment, being connected thereby to by a few threads as at 31.

In Figs. 7 and 8 I have shown a syringe

barrel 32 similar in construction to the barrel described in connection with Fig 4 but instead of a cap or ferrule, the barrel is provided with a threaded nipple 33, having a concave seat 34. A union or nozzle mounting 35 formed with an internally threaded socket 36 is connected with the threaded nipple, it being observed that there is a central passage through the said nipple and union or nozzle for the needle 37 carried by the needle nozzle 38. In this form of the invention, the needle extends entirely through the nipple and is of a length to pierce the closure of the cartridge or container within the barrel. The needle nozzle 38 within the socket 39 formed in the top of the union is of reduced diameter so as to snugly fit therein being provided with a few threads for connection with the threads 41. In this form of the invention, as well as the form shown by Figs. 5 and 6, the union with the nozzle may be removed or replaced as an entirety from the nipple of the barrel, the union permitting a needle of the type shown by Fig. 6 or that shown by Fig. 8 to be used.

From the above construction, it will be seen that according to my attachment, the replacement of the barrel of a hypodermic syringe seldom if ever becomes necessary. When once purchased, the union and the needle nozzle constitute attachments which can be had at a small expense. It is well known that needle replacements constitute the major expense in hypodermic syringes and by providing a union of the character and type shown which interfits and cooperates with the needle nozzle, a leakproof syringe is provided.

This application is an improvement over my co-pending application for syringes, filed July 21, 1925, Serial No. 45,915, allowed April 17, 1926.

Having shown and described my invention, what I now claim as new and desire to secure by Letters Patent of the U. S. is:

1. A needle mounting for hypodermic syringe barrels comprising a cap detachably connected to the discharge end of said barrel, said cap having a socket and a concave seat therein, a needle nozzle and a needle

detachably connected within the tapered seat of the socket of the cap, said needle extending through the nozzle and cap and into the end of the barrel.

2. A needle mounting for hypodermic syringe barrels comprising a cap threaded to the discharge end of said barrel, said cap having a socket and a concave seat therein, and a needle nozzle and needle threaded within the tapered seat of the socket of the cap, said needle extending through the nozzle, cap and end of the barrel.

3. A needle mounting for hypodermic syringe barrels comprising a cap threaded to the outer discharge end of said barrel, said cap having a socket and a concave seat therein, a needle nozzle and needle threaded within the socket, said nozzle having a convex extension adapted to lie within said seat forming a leakproof connection.

4. A needle mounting for hypodermic syringe barrels comprising a cap having an interior non-threaded surface and a threaded portion whereby it may be slipped on the discharge end of a syringe barrel and threaded thereto, said cap having a concave seat in the top thereof, a needle nozzle and a needle detachably seated within and threaded in the concave seat, said needle being adapted to extend through the nozzle, cap and discharge end of the barrel and said cap and nozzle being detachable as a unit from the discharge end of said barrel.

5. A needle mounting for hypodermic syringe barrels comprising a cap having an interior non-threaded surface and a threaded portion at its end only whereby it may be slipped on the discharge end of a syringe barrel and threaded thereto, said cap having a partially threaded concave seat in its top, a needle nozzle and a needle detachably seated within and threaded in the concave seat, said needle being of a length to extend through the nozzle, cap and a closure in the discharge end of said barrel, said cap and nozzle being detachable with the needle as a unit from said discharge end for sterilization.

In testimony whereof I affix my signature.
BENJAMIN FRIEDMAN.