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F. L. PLATT ET AL

HYPODERMIC SYRINGE

Filed June 21, 1922

Fig. 1.

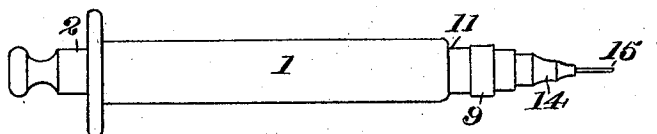


Fig. 2.

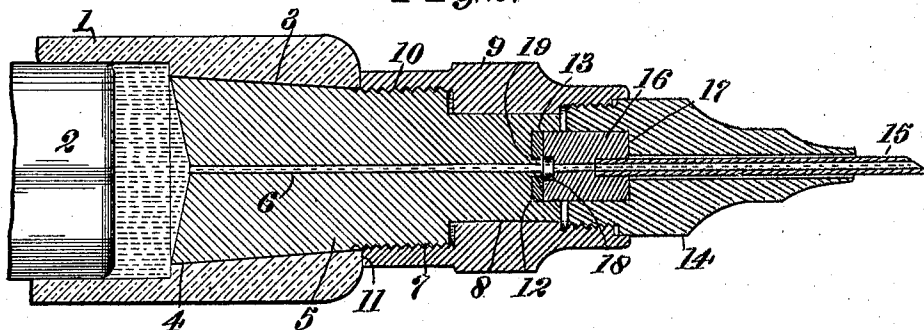
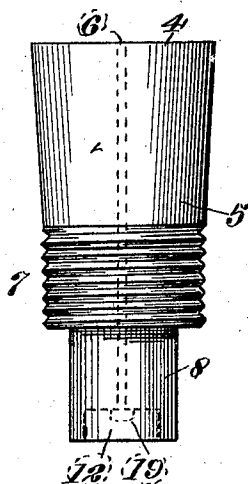


Fig. 3.



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UNITED STATES PATENT OFFICE.

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HYPODERMIC SYRINGE.

Application filed June 21, 1922. Serial No. 569,923.

To all whom it may concern:

Be it known that we, FRANK L. PLATT, GEORGE N. HEIN, and ROBERT R. IMPEY, citizens of the United States, residing at the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Hypodermic Syringes, of which the following is a specification.

10 This invention relates particularly to hypodermic syringes.

The present type of syringe employs a tapered tip on the barrel or an inwardly tapered opening in the barrel for receiving
15 solely through frictional contact a base mounting for a hypodermic needle, and which base is maintained therein or thereon as the case may be to form a fluid tight joint solely through frictional engagement with
20 the co-operating surface of the barrel. In constructions of this type, the fluid pressure within the barrel often causes a separation of the needle base from the barrel, and a consequent leakage of the fluid and a faulty
25 engagement.

Our present invention relates particularly to a needle base mounting adapted to be held in operative relation at the end of a barrel through a clamping member which with the
30 construction of the barrel discharge opening or bore holds the needle mounting device in fixed position until released.

A further object is to provide a construction wherein the attaching member is positioned in the barrel or casing by being
35 passed longitudinally through the same from its opposite end and held at the discharge end of the barrel by a clamping member forming a frictional fluid tight joint.

40 With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood
45 that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit
50 or sacrificing any of the advantages of the invention.

To more fully comprehend the invention,

reference is directed to the accompanying drawings, wherein:—

Figure 1 is a view in side elevation of the preferred embodiment of our invention. 55

Figure 2 is a longitudinal sectional view through the discharge end of the barrel illustrating the shape of the nipple, coupler and mounting for the needle base. 60

Figure 3 is a view in elevation of the nipple removed from the barrel.

Referring more particularly to the several views of the drawings wherein like characters of reference designate corresponding parts, 1 indicates the barrel of a hypodermic syringe preferably formed of glass, and within which is mounted the usual expelling piston 2. The discharge end of the barrel is formed with an outwardly tapered bore 3 preferably of conical formation, and within which is adapted to be received the tapered or conical end 4 of the tubular nipple 5 which is inserted in position in the barrel from the end thereof opposite the bore 3. The nipple is formed with a central duct 6, and approximately midway of its length it is peripherally threaded as at 7, the portion thereof beyond said threaded portion being preferably reduced and of cylindrical form as at 8. The nipple 5 is preferably of metallic construction, and the face of the bore 3 is preferably ground so that contact with the same by the surface of the tapered end 4 of the nipple 5 will form, solely through friction, a fluid tight joint. A coupling 9 having a threaded end 10 for engaging the thread 7 of the nipple is adapted to be threaded onto said nipple until its end wall 11 contacts with the end of the barrel 1 exerting an outward pull on the nipple to maintain the same tightly seated in the bore 3. The outer end of the nipple is annularly grooved as at 12 surrounding the duct 6 providing a portion for receiving a washer 13 which is of a thickness less than the depth of the groove 12. Threaded to the outer end of the coupling 9 is a tubular tip adapter 14 outwardly through which extends a hypodermic needle 15 of any suitable construction. The needle is carried on a tubular needle base 16, which is received in a depression 17 in the inner end of the adapter 14, and said needle base at the end 100

removed from the needle is recessed as at 18 so that the projection 19 at the end of the duct 6 may project therein while the remainder of the needle base firmly seats on the washer 13.

By this construction, it will be observed that a metallic tip may be detachably secured to the end of the glass barrel 1 of a hypodermic syringe, and that when positioned it is held from longitudinal movement in either direction until such time as the coupling or holding element is released. This construction provides the separation of the parts for sterilization and provides a syringe which is particularly desirable for physicians' use.

Having thus described our invention, what we claim as new and desire to protect by Letters Patent of the United States is:—

1. A syringe including a barrel provided with a tubular bore having a tapered discharge end, a tubular nipple having a tapered base for detachable reception within said bore by passing the same longitudinally therethrough from the opposite end of said bore, said nipple adapted for frictionally engaging the tapered discharge end of said bore to provide a fluid tight joint therebetween, a coupler for engaging said nipple and barrel for retaining the same in their relatively operative position, and a needle detachably secured to said coupler.

2. A syringe including a barrel provided with a tubular bore having a tapered discharge end, a tubular nipple having a tapered base for detachable reception within said bore by passing the same longitudinally therethrough from the opposite end of said bore, said nipple adapted for frictionally engaging the tapered discharge end of said bore to provide a fluid tight joint therebetween, a coupler having threaded connection with said tubular nipple and engaging said barrel for retaining the nipple therein, and a needle detachably associated with the end of said tubular nipple.

3. A syringe including a barrel provided with a tubular bore having a tapered discharge end, a tubular nipple having a tapered base for detachable reception with-

in said bore by passing the same longitudinally therethrough from the opposite end of said bore, said nipple adapted for frictionally engaging the tapered discharge end of said bore to provide a fluid tight joint therebetween, a coupler having threaded connection with said tubular nipple and contacting with said barrel for retaining the nipple therein, a tubular adapter for engaging with said coupler, and a needle extended through the tubular adapter and provided with a base held by said coupler between one end of said nipple and said adapter.

4. A hypodermic syringe including a barrel provided with a tubular bore formed at one end with a discharge opening of a diameter less than the tubular bore, a nipple having an enlarged end and for detachable reception within said bore by passing the same longitudinally therethrough from the opposite end of said barrel, the enlarged end of said nipple adapted for directly engaging the barrel wall to form therewith a leak proof joint, a coupler for engaging said nipple and said barrel to retain the parts in their assembled position, and a needle detachably associated with said nipple.

5. A hypodermic syringe including a barrel provided with a tubular bore formed at one end with a discharge opening of a diameter less than the tubular bore, a nipple having an enlarged end and for detachable reception within said bore by passing the same longitudinally therethrough from the opposite end of said barrel, the enlarged end of said nipple adapted for directly engaging the barrel wall to form therewith a leak proof joint, a coupler having a threaded connection with said nipple and adapted for forcing into contact with said barrel to exert an outward tension on said nipple to maintain tight its point of contact with said barrel wall, and a needle detachably associated with the nipple and held in position by said coupler.

In testimony whereof we have signed our names to this specification.

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