

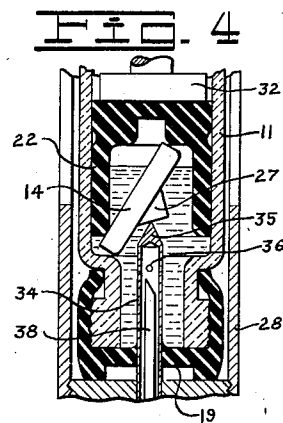
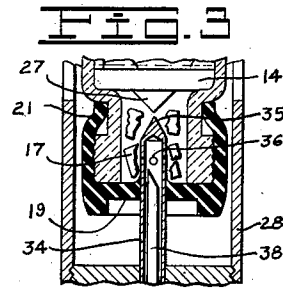
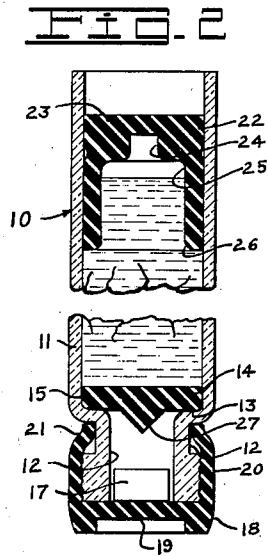
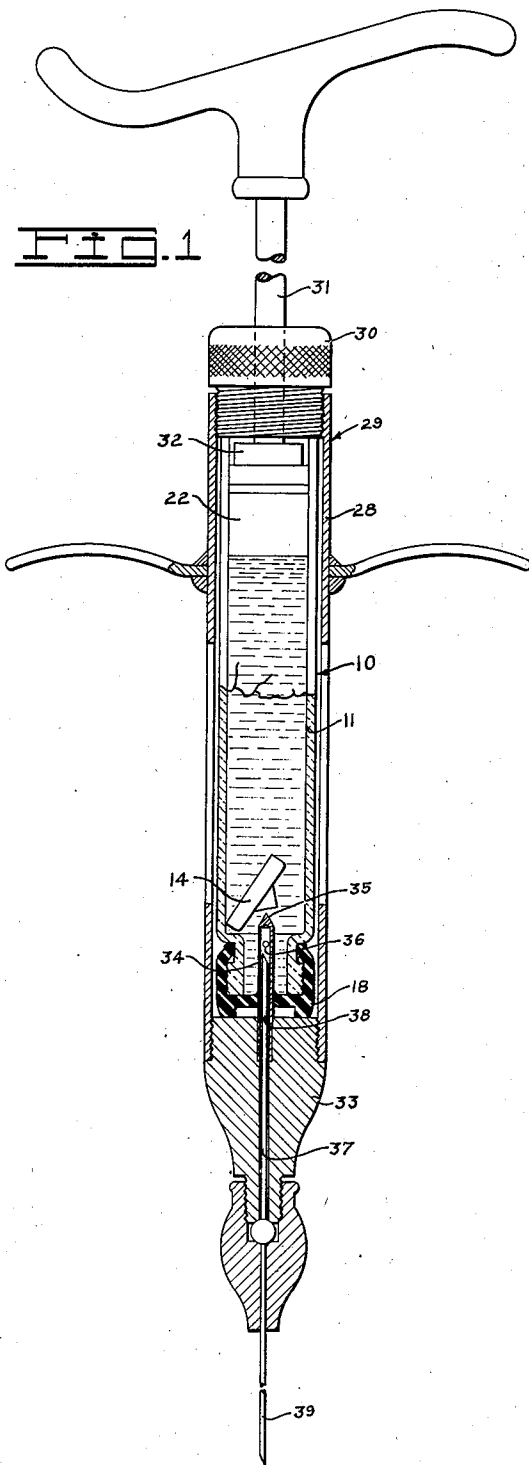
Jan. 6, 1942.

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SYRINGE AMPOULE

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UNITED STATES PATENT OFFICE

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SYRINGE AMPOULE

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1 Claim. (Cl. 128—218)

This invention relates to syringe ampoules.

The general object of this invention is to provide a novel ampoule for use in a syringe for administering local anesthetics such as employed by dental surgeons.

A more specific object of this invention is to provide an ampoule having a shoulder and with a closure associated with the shoulder in such a manner as to provide a plurality of compartments whereby a local anesthetic preparation may be maintained separate from its vehicle until the solution is desired for use, whereupon the solution may be freshly prepared and injected.

A more specific object of this invention is to provide an ampoule having a neck portion and a shoulder at one end and having a closure engaging the shoulder and with a second closure on the end of the ampoule forming in conjunction with the disk a chamber in which a medicinal preparation is secured.

Other objects and the advantages of my invention will be apparent from the following description taken in connection with the accompanying drawing wherein:

Fig. 1 is a central sectional view through a syringe and ampoule embodying the features of my invention;

Fig. 2 is a central sectional view showing my improved ampoule;

Fig. 3 is a central sectional view of the ampoule in the first step of preparing a fresh solution; and

Fig. 4 is a view showing the relation of the parts after the contents of the ampoule have been discharged.

Referring to the drawing by reference characters I have shown my invention as embodied in a syringe ampoule which is indicated generally at 10. As shown, the ampoule comprises an elongated substantially cylindrical body 11 having a constriction 12 at one end which forms an inner shoulder 13 directed toward the end of the ampoule. Mounted upon the shoulder 13, I arrange a disk 14 which may be made of rubber or other suitable soft material.

The disk 14 at its periphery 15 sealingly engages the inner wall of the ampoule and thus provides a compartment 16 in which a medicinal preparation shown as a pellet 17 is arranged. The end of the ampoule adjacent the disk 14 is shown as closed by a resilient rubber cap 18 which includes an end diaphragm portion 19 and a skirt 20, the end portion 21 of which is disposed in the constriction 12 previously described.

In the end of the ampoule remote from the constriction 12 I arrange a piston cork 22 which includes a rubber body having an end 23 and a recess 24 therein, and having a counterbored 5 recess 25. The forward end of the cork 22 is peripherally rounded as at 26. The disk 14 is provided on the face adjacent the pellet 17 with a protuberance 27 which is shown as frustro-conical.

The ampoule is arranged within the barrel 28 of a syringe 29 which includes an end member 30 through which a plunger rod 31 having a head 32 thereon extends. The barrel 28 includes a front member 33 through which a tube 34 extends. 10 The tube 34 has a sharpened closed end 35 and has lateral holes 36 permitting passage of liquid. A needle 37 is arranged on the front member 33 and includes an inner end 38 which extends into the tube 34. The needle also includes an injecting end 39.

In use the ampoule is placed in the syringe and is moved forward in the barrel causing the tube 34 to pierce the diaphragm 19 and to either push aside or break the pellet 17. The sharpened 15 tube then engages the protuberance 27 and due to the doubly inclined surfaces of the tube end and protuberance the disk 14 is canted and the preparation 17 is free to mingle with the vehicle in the ampoule 10.

When an injection is to be made, the plunger 31 is moved forwardly causing the head 32 thereon to engage in advance the piston cork 22 thus forcing the ampoule contents through the holes 36 and through the needle 37. This action 20 continues until the cork has moved to its extreme forward position where it surrounds the disk 14 as shown in Fig. 4.

This construction is designed for ampoules in which it is desired to maintain a drug in a compartment sealed from the solvent for the drug. For example, since novocain deteriorates when in solution, a novocain tablet or powder may be placed in the chamber in the neck and the solvent for the novocain placed in the main 25 body of the ampoule. When the disk is forced inwardly the novocain will enter into the solvent providing the desired solution.

From the foregoing description it is apparent that I have invented a novel syringe ampoule which can be economically manufactured and which is highly efficient for its intended purpose.

Having thus described my invention, I claim:
An ampoule for use in a hypodermic syringe which includes a barrel having a front member 30 thereon and having a pointed tubular member 31

on the front member and projecting into the barrel, said ampoule including an elongated body having a constricted neck portion adjacent one end, the remainder of the body being cylindrical, a movable piston cork in the body and disposed at the end thereof remote from the neck, a disk in said body, said neck having an inner shoulder facing toward said piston cork, said disk engaging the inner face of said shoulder, and a rubber closure cap engaging on said neck, said closure cap including an end portion engaging

the end wall of the neck and a skirt engaging the side walls of the neck, said skirt extending into the restriction, said disk having a centrally disposed conical outwardly directed protuberance thereon on the face thereof nearest said closure cap, said protuberance being spaced from said closure cap end portion and adapted to be engaged by the pointed member on a syringe to thereby tilt the disk.

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