Oct. 27, 1942. A. E. SMITH 2,300,070

AMPOULE CONSTRUCTION

Original Filed Nov. 3, 1933

Fig. 1

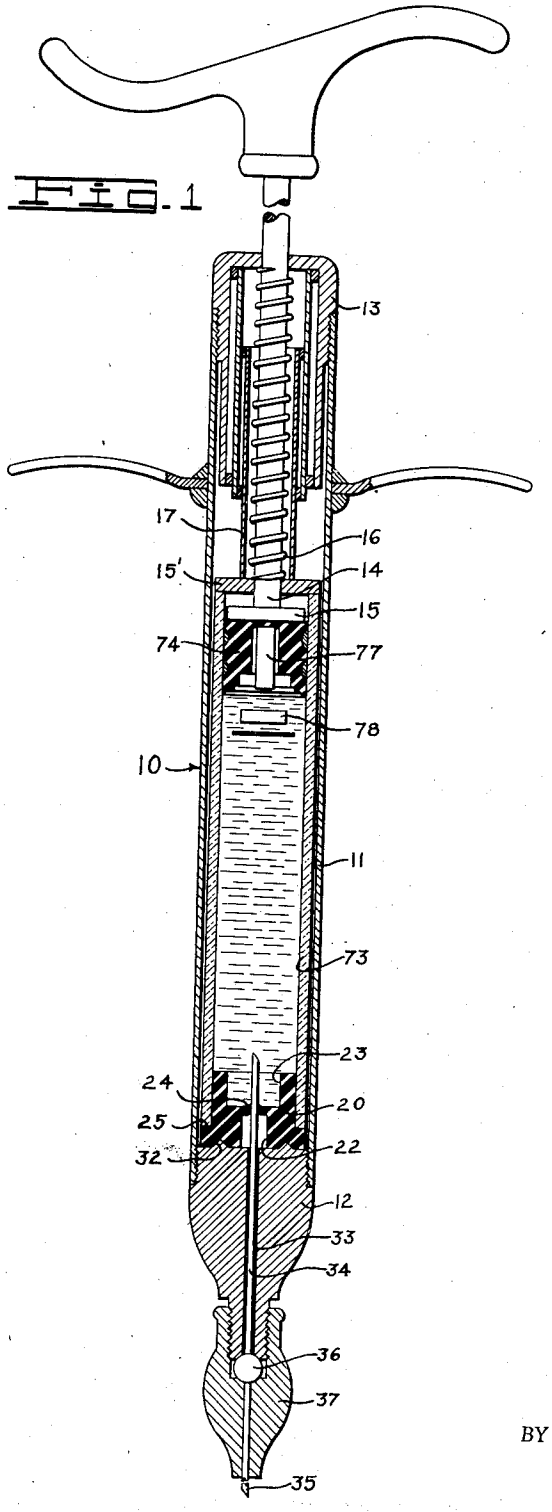
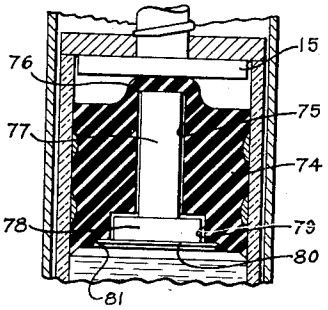


Fig. 2



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AMPOULE CONSTRUCTION

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Original application November 3, 1933, Serial No. 696,506. Divided and this application December 31, 1940, Serial No. 372,582

2 Claims. (Cl. 128—272)

This invention relates to ampoule syringes.

The general object is to provide a novel syringe construction embodying a removable ampoule, wherein novel means is provided to enable a fresh solution to be prepared.

Another object is to provide an ampoule including a novel closure with a medicinal preparation arranged in the closure and adapted to be discharged therefrom into a vehicle to form a solution.

Another object is to provide a syringe having an ampoule therein wherein the ampoule includes a novel closure which has a medicinal tablet sealed therein and wherein the syringe includes means to cause the tablet to be exposed.

A further object of my invention is to provide a novel closure for containers.

Other objects and the advantages of this 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; and

Fig. 2 is an enlarged, fragmentary sectional view showing the upper end of the ampoule and the lower end of the plunger.

This application is a division of my prior copending application Serial No. 696,506, filed November 3, 1933.

Referring now to the accompanying drawing by reference characters, I have shown my invention as embodied in a syringe indicated generally at 10. As shown, this syringe includes a barrel 11 having a front member 12 thereon at one end. The barrel is closed at the other end by a cap 13 which has a plunger 14 movable therethrough. The plunger 14 has a head 15 thereon which is normally urged forward by a disk 15' which is engaged by a spring 16. The spring 16 is surrounded by telescopic segments 17, as clearly shown in the drawing.

Within the barrel 11 I show one embodiment of my improved ampoule which is indicated generally at 73. This ampoule is preferably made of glass and is cylindrical with ends at right angles to the axis of the ampoule.

In the front end the ampoule is provided with a closure indicated at 20. This closure is preferably made of a good grade of resilient rubber. The body of the closure 20 is provided with a central cylindrical hole 22 which is separated from a central hole 23 by a diaphragm 24.

The front member is provided with a sharp circumferentially inwardly extending bead 32 which engages the end of the closure 20 and a shoulder 25 on the closure 20 against the end of the ampoule and maintains the parts in fluid tight engagement. The front end is provided with a bore 33, which receives a needle 34 of less diameter than the diameter of the bore 33. The needle includes a front end 35 and a soft metal seal 36 and is held in place by a tip member 37.

The ampoule 73 has a piston 74 movably mounted thereon. This piston 74 is provided with a central bore 75 which is closed at its upper end by a diaphragm 76. A stiff pin 77 is loosely mounted in the bore. A tablet 78 is arranged in a recess 79 at the end of the piston opposite the diaphragm 76. A disk 80 engages the wall 81 to seal the tablet in place.

In use the ampoule is placed in the barrel and the cap 13 is secured in place. The disk 15 engages the end of the ampoule and pushes it forward causing the needle to pierce the diaphragm 24.

The plunger 82 is then moved inwardly and the head 15 thereon engages the diaphragm 76 without puncturing the same and moves downwardly moving the pin 77 and causing the pin 77 to force the tablet 78 and disk 80 into the vehicle in the ampoule.

This construction is designed for containers in which it is desired to maintain a drug in a compartment sealed off 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 closure and the solvent for the novocain placed in the main body of the container. When the disk is forced out of the recess, the novocain will enter the solvent providing the desired fresh solution.

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

Having thus described my invention, I claim:

1. An ampoule, a sliding imperforate closure for one end of the ampoule, said closure being formed from resilient material, said closure having an outer depressable end portion, a disk spaced from at least a portion of said end portion of the closure and in sealing relation thereto to form therewith a chamber, a tablet in said chamber and engaging the disk, a stiff elongated ejecting member confined in and slidable in the chamber the parts being so constructed and arranged that when the end portion of the closure is pressed the closure ejecting member will be

moved to engage and push the tablet against the disk to thereby release the disk.

2. In a container, a movable, resilient, imperforate, piston closure therefor, a sealing disk in sealing relation with the closure and spaced from one end of said closure to define a chamber therewith, sealing disk ejecting means movable in the chamber, a drug in said chamber, said disk and said drug being located in the path of said ejecting means, a vehicle for the drug in the container, the outer end of the closure being accessible whereby it may first be pushed to move the ejecting means and thereby free the drug and may thereafter be pushed to discharge the ampoule contents.

ARTHUR E. SMITH.