

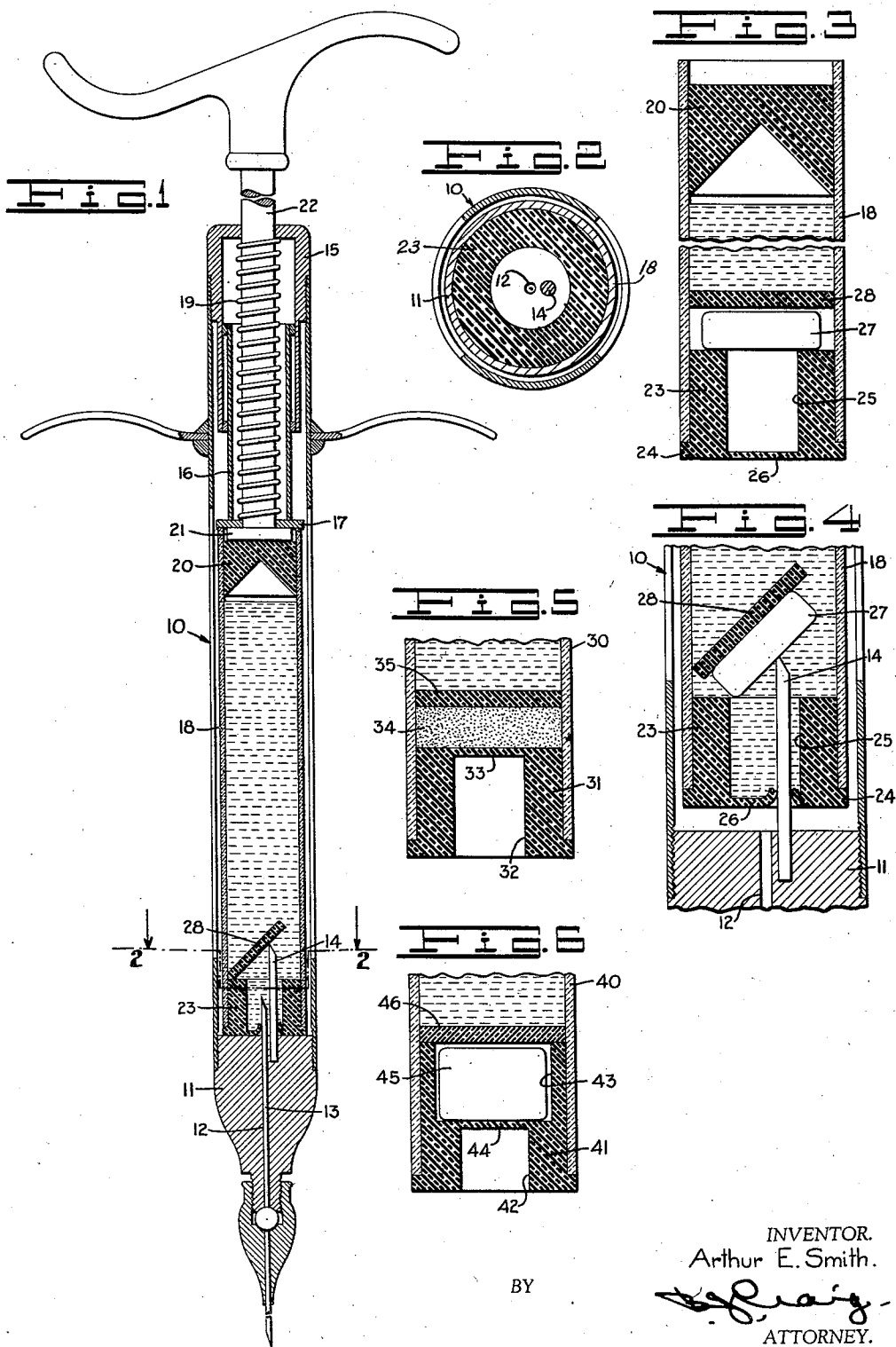
May 19, 1942.

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2,283,234

HYPODERMIC SYRINGE CONSTRUCTION

Filed May 5, 1939



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UNITED STATES PATENT OFFICE

2,283,234

HYPODERMIC SYRINGE CONSTRUCTION

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Application May 5, 1939, Serial No. 271,888

3 Claims. (Cl. 128—218)

This invention relates to syringes.

The general object of the invention is to provide a novel ampule syringe.

Another object of the invention is to provide a novel syringe barrel for supporting an ampule.

A further object of the invention is to provide a novel ampule cork.

Another object of the invention is to provide a novel ampule.

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 embodying the features of my invention;

Fig. 2 is an enlarged section taken on line 2—2, Fig. 1;

Fig. 3 is an enlarged fragmentary sectional view of the ampule;

Fig. 4 is a fragmentary sectional view showing the ampule and associated parts;

Fig. 5 is a fragmentary sectional view showing a modified ampule cork; and

Fig. 6 is a central sectional view showing a further modified cork.

Referring to the drawing by reference characters I have indicated a syringe embodying the features of my invention generally at 10. As shown the syringe includes a front member 11 having an aperture 12 through which a needle 13 extends. The front member 11 is also provided with a needle 14 which is disposed at one side of the axis of the barrel and which extends into the barrel farther than does the needle 13.

At the rear end the barrel is provided with a rear member 15 which includes a telescopic section 16 having a head 17 thereon which is normally urged against the upper end of an ampule 18 by a spring 19.

At its rear end the ampule includes a resilient piston closure cork 20 which is shown as engaged by a flange 21 on a plunger 22 mounted on the rear end member.

The front of the ampule is provided with a rubber cork 23 which has a shoulder 24 thereon engaging the end of the ampule and has a cavity 25 thereon the outer end of which is closed by a diaphragm 26. A medicinal tablet 27 is disposed adjacent to the cork 23 and is hermetically sealed from the remainder of the ampule by a cork or disk 28 which is made of rubber or similar material. The cavity 25 enables the cork 23 to have sufficient length so that it will not be displaced readily and also permits the dia-

phragm 26 to be thin so that it may be readily punctured.

In operation the ampule is placed in the barrel and the needle 14 passing through the diaphragm 26 as shown in Fig. 4 dislodges the tablet 27 and the disk 28. The needle 14 being offset with respect to the axis of the ampule assures that the disk 28 will be tilted and displaced. After the disk is unseated, thus allowing the tablet to mix with the vehicle in the ampule, the needle 12 may be inserted and secured in place with its end passing through the diaphragm 26. The pressure of the rear member urges the ampule forward so that a fluid tight seal is maintained at the forward end thereof.

In Fig. 5 the ampule 30 is provided with an end cork 31 having an outer recess 32 and an inner diaphragm 33 with a medicinal preparation 34 adjacent to the end of the cork 31 and held in place by a resilient disk 35. The recess 32 enables the cork 31 to have sufficient length so that it will not be displaced readily and also permits the diaphragm 33 to be thin so that it may be readily punctured.

In operation the ampule 30 is inserted in a syringe similar to that previously described and the needle 14 passing through the diaphragm 33 tilts and displaces the disk 35 allowing the vehicle and drug 34 to mix after which the solution may be injected through the needle 13.

In Fig. 6 the ampule 40 includes an end cork 41 having an outer recess 42 and an inner recess 43 with a diaphragm 44 between the recesses. The recesses 42 and 43 enable the cork 41 to have sufficient length so that it will remain in place and also produce a thin diaphragm 44.

A tablet 45 is inserted in the recess 43 and is held in place by a tiltable disk 46 which is shown as directly engaging the end of the cork 41. The use of the ampule shown in Fig. 6 will be obvious from the preceding description.

From the foregoing it will be apparent that I have invented a novel syringe, ampule and ampule cork which are highly efficient for their intended purpose.

Having thus described my invention, I claim:

1. In a syringe, a cylindrical barrel having a front and rear member thereon, said rear member having means thereon to engage a cylindrical ampule, a plunger in the rear member, said front member having a hole therethrough, and an injecting needle passing through said hole and adapted to pass into the ampule, and a piercing needle fixed on the one of the members and extending into the barrel beyond the injecting

needle, said piercing needle being disposed at one side of the axis of the cylindrical barrel.

2. In a syringe, a cylindrical barrel having a plunger thereon, a cylindrical ampule in the barrel, said ampule having a cork therein at the front end, said cork having a recess therein, a medicinal tablet adjacent said cork, a second cork adjacent the first cork and sealingly engaging the inner wall of the ampule to form an hermetic seal therewith, a front member on the syringe having a hole therethrough, an injecting needle passing through said hole and into the ampule, and a piercing needle on the front member and extending into the barrel, said piercing needle being disposed at one side of the axis of the cylindrical barrel and being of a length to engage the second cork.

3. In a syringe, a cylindrical barrel having a front and a rear member thereon, a cylindrical

ampule in said barrel, said rear member having means thereon to engage the ampule, a plunger in the rear member, a piston cork in the ampule and engaged by said plunger, said ampule having a cork therein at the front end engaging the syringe front member in fluid tight relation, said front cork having a recess therein, a medicinal tablet adjacent said front cork, a second cork adjacent the front cork and sealingly engaging the inner wall of the ampule to form an hermetic seal therewith, said front member having a hole therethrough, an injecting needle passing through said hole and into the ampule, and a piercing needle on the front member and extending into the barrel, said piercing needle being disposed at one side of the axis of the cylindrical barrel and being of a length to engage the second cork.

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