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CAPSULE TYPE DENTAL SYRINGE

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Fig. 1

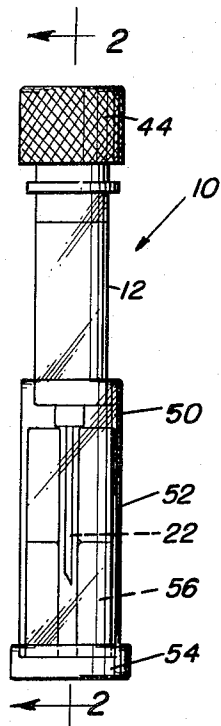


Fig. 2

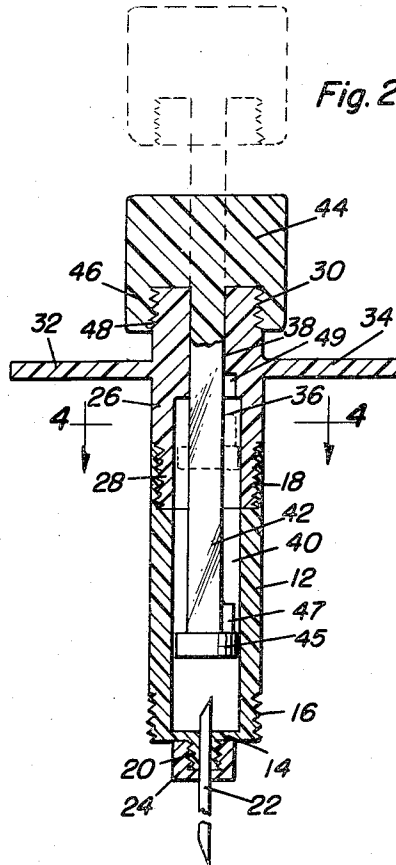
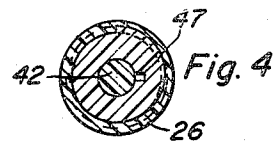
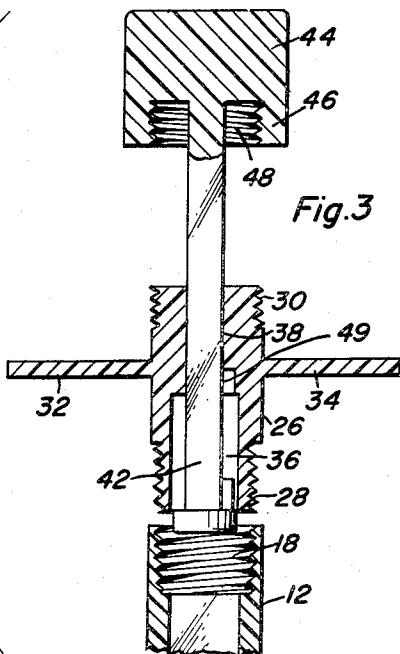


Fig. 3



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CAPSULE TYPE DENTAL SYRINGE

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10 Claims. (Cl. 128-218)

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This invention relates to a syringe adapted to be used in the application of medicinal solutions contained in capsules of either the movable piston type or of the deformable wall type.

The primary object of this invention resides in the provision of a hypodermic syringe especially adapted for use with all types of medicinal capsules and especially adapted for dental uses.

Another object of the invention resides in the provision of a dental syringe that is composed of a plurality of parts so that it may be easily disassembled, cleaned, and sterilized.

The construction of this invention features the use of a crown which is threadedly detachably secured to a barrel adapted to contain the needle and adapted to have a capsule inserted therein in engagement with an upper sharpened end of the needle. A plunger is threadedly engaged on the crown and adapted to be locked in place when not in use. Means are provided on the plunger for enabling the crown to be more easily unscrewed from the barrel and there is also provided a combined needle protector and capsule holder which is detachably threadedly secured to the valve.

Still further objects and features of the invention reside in the provision of a hypodermic syringe that is strong and durable, simple in construction and manufacture, capable of being produced out of readily available materials, and which is highly efficient and sanitary in use.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds, are attained by this hypodermic syringe, a preferred embodiment of which has been illustrated in the accompanying drawings, by way of example only, wherein:

Figure 1 is an elevational view of the syringe comprising the present invention;

Figure 2 is an enlarged vertical sectional view as taken along the plane of line 2-2 in Figure 1 illustrating the capsule type syringe with the capsule holder removed therefrom;

Figure 3 is an exploded sectional view similar to that as is shown in Figure 2 but illustrating the component elements of the invention in a disassembled state; and

Figure 4 is a horizontal sectional view as taken along the plane of line 4-4 in Figure 2.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 generally designates the capsule type dental syringe comprising the

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present invention. This syringe includes a barrel 12 preferably formed from any suitable transparent though heat resistant synthetic plastic material which is provided with cylindrical side walls and having a bottom wall 14. The lower end of the barrel 12 is externally threaded as at 16 and the upper end of the barrel is internally threaded as at 18. The barrel has a threaded extension 20 depending from the bottom wall 16 within which a double ended hollow needle 22 is retained. A threaded cap 24 is provided and overlies the threaded extension 20 and braces the needle 22.

Threadedly secured to the upper end 18 of the barrel 12 is a crown 26 having an externally threaded lower end 28. The upper end of the crown 26 is also externally threaded as at 30. A pair of projecting grip portions 32 and 34 are preferably integrally molded with the crown 26 and extend outwardly therefrom at right angles thereto. The lower end of the crown 26 is provided with an enlarged recess 36 in communication with the central aperture 38 through the crown.

Extending through the aperture 36 in the crown 26 and through the recess 38 and into the chamber 40 formed in the barrel 12 is a plunger 42 having a cap 44 provided with a downwardly extending peripheral flange 46 which is internally threaded as at 48 for engagement with the externally threaded upper end of the crown 26. The lower end of the plunger 32 is provided with an enlarged portion 45. Immediately above the portion 44 of the plunger 42 is a lug 47 which is adapted to seat within a small recess 49 in the crown 26. Hence, upon withdrawal of the plunger 42 upwardly through the barrel 12 and the crown 26 the lug 47 will engage the crown within the recess 49 thus rotating the crown free of the barrel 12 upon rotation of the cap 44 which has preferably a knurled outer surface for the better grasp thereof.

Threadedly secured on the lower threaded portion 16 of the barrel 12 is a combined needle protector and capsule reservoir 50 which has an internally threaded upper end and which is provided with cylindrical side walls 52 and a bottom wall 54. Between the needle 22 and the cylindrical walls 52 of the reservoir 50 there may be retained a suitable number of capsules 56.

In operation, after the crown has been removed from the barrel, it is possible to insert a capsule within the chamber 40. If the capsule is of a movable piston-type, the plunger head 45 will depress the contents of the capsule by mov-

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ing the piston downwardly through the capsule. If the capsule is of a flexible wall crushable-type container, the enlarged head 45 seating within the chamber 40 will crush the flexible container and discharge the contents thereof through the hollow needle 22.

Mention should be made of the fact, it is noted, that one of the features of the syringe is the fact that the needle protector 52 not only protects the needle but in conjunction with the cap 44, seals the needle off and maintains the sterility of the needle. This is a desirable feature particularly in the case of a multiple use syringe where the entire unit may be sterilized and sterility maintained with a minimum of care.

Since from the foregoing, the construction and advantages of this capsule-type dental syringe are readily apparent, further description is believed to be unnecessary. However, since numerous modifications will readily occur to those skilled in the art after a consideration of the foregoing specification and accompanying drawings, it is not intended to limit the invention to the precise embodiment shown and described, but all suitable modifications and equivalents may be readily resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said bottom wall, a tubular crown threadably secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, said barrel having the upper end thereof internally threaded, the inner periphery of said flange being threaded.

2. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said bottom wall, a tubular crown threadably secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, said barrel having the upper end thereof internally threaded, the inner periphery of said flange being threaded, said crown having grip portions secured thereto extending normal to said crown.

3. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said bottom wall, a tubular crown threadably secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, and a combined needle protector and capsule container of tubular shape detachably threadably secured to the lower end of said barrel.

4. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said

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bottom wall, a tubular crown threadably secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, said crown having grip portions secured thereto extending normal to said crown, and a combined needle protector and capsule container of tubular shape detachably threadably secured to the lower end of said barrel.

5. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having a threaded crown threadably secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, said barrel having the upper end thereof internally threaded, the inner periphery of said flange being threaded, and a combined needle protector and capsule container of tubular shape detachably threadably secured to the lower end of said barrel.

6. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said bottom wall, a tubular crown threadably secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, said barrel having the upper end thereof internally threaded, the inner periphery of said flange being threaded, said crown having grip portions secured thereto extending normal to said crown, and a combined needle protector and capsule container of tubular shape detachably threadably secured to the lower end of said barrel.

7. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said bottom wall, a tubular crown threadably secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, said crown having a recess therein, said plunger having a lug thereon adapted to seat in said recess.

8. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said bottom wall, a tubular crown threadably secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, said crown having grip portions secured thereto extending normal to said crown, said crown having a recess therein, said plunger having a lug thereon adapted to seat in said recess.

9. A dental syringe for use in application of medicinal solutions from capsule containers comprising a barrel having cylindrical side walls

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and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said bottom wall, a tubular crown threadedly secured to the upper end of said barrel, a plunger extending through said crown and into said barrel, 5 said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, said barrel having the upper end thereof internally threaded, the inner periphery of said flange being threaded, 10 said crown having grip portions secured thereto extending normal to said crown, said crown having a recess therein, said plunger having a lug thereon adapted to seat in said recess.

10. A dental syringe for use in application of 15 medicinal solutions from capsule containers comprising a barrel having cylindrical side walls and a bottom wall forming a chamber and having threaded ends, a hollow needle secured in said bottom wall, a tubular crown threadedly secured 20

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to the upper end of said barrel, a plunger extending through said crown and into said barrel, said plunger having a cap, said cap having a downwardly extending peripheral flange adapted to engage and overlie said crown, and a combined needle protector and capsule container of tubular shape detachably threadedly secured to the lower end of said barrel, said crown having a recess therein, said plunger having a lug thereon adapted to seat in said recess.

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