H. A. WEGUELIN & R. A. PHELAN.

COMBINED EYE DROPPER, SYRINGE, AND MEDICINE HOLDER.

APPLICATION FILED NOV. 19, 1917.

1,272,742.

Patented July 16, 1918.

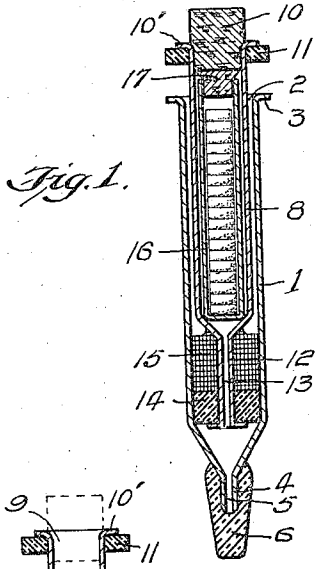

Fig. 1.

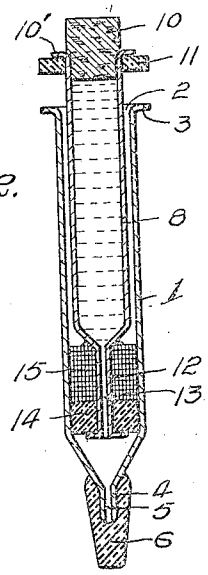

Fig. 2.

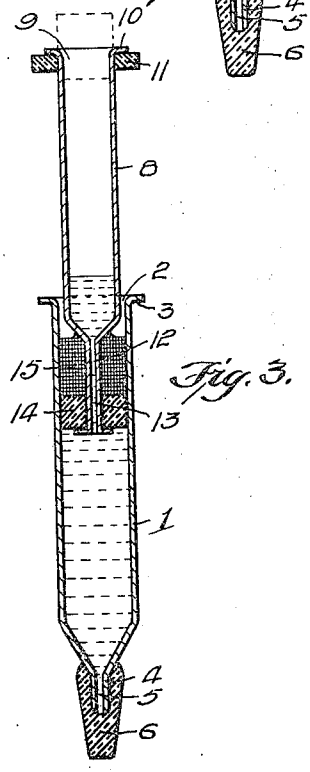

Fig. 3.

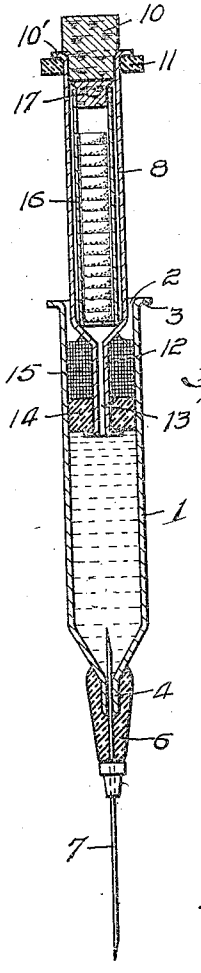

Fig. 4.

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COMBINED EYE-DROPPER, SYRINGE, AND MEDICINE-HOLDER.

1,272,742. Specification of Letters Patent. Patented July 16, 1918.

Application filed November 13, 1917. Serial No. 202,840.

To all whom it may concern:

Be it known that we, HAROLD A. WEGUELIN and RICHARD A. PHELAN, citizens of the United States, residing in the city of St. Louis and State of Missouri, have invented a certain new and useful Combined Eye-Dropper, Syringe, and Medicine-Holder, of which the following is a specification.

Our invention relates to improvements in syringes and has for its objects to provide a combined device of the class mentioned which may be successfully used as an eye-dropper, hypodermic syringe, or ordinary syringe and medicine holder.

With the above and other objects in view which will appear hereinafter, the invention consists in the novel arrangement and combination of parts, clearly illustrated in the drawing, described in the following specification and finally pointed out in the claims hereto appended.

Referring to the accompanying drawings forming a part of this specification wherein like characters of reference denote similar parts throughout the several views:

Figure 1, is a vertical sectional view of a device constructed and assembled in accordance with our invention.

Fig. 2, is a similar view with the removable medicament holder removed from the combined piston barrel and liquid medicine holder.

Fig. 3, is a vertical sectional view of the device, with the piston barrel shown in an outer extended position, and with the removable medicine holder removed.

Fig. 4, is a vertical sectional view of the device, with the removable medicine holder shown within the piston barrel, and a hypodermic needle attached showing the device in readiness for use as a hypodermic syringe.

In carrying out the aim of our invention, we employ an outer barrel 1 having the upper open end 2. The upper edge of the barrel 1 is provided with a circumferential flange 3. The lower end of the barrel 1 is provided with a contracted or reduced portion in the form of a nozzle 4 having the central opening as passage 5. The nozzle 4 is provided with a removable closure or cap 6 made, preferably, from soft rubber so that it will readily close any puncture thereof caused by the insertion or passage therethrough of a hypodermic needle 7, one of which needles is shown as passed through the cap 6 in Fig. 4.

A second or inner barrel 8 is employed which acts both as a piston barrel and a liquid medicine holder.

The inner barrel 8 has an upper open end 9 which is provided with a suitable removable stopper 10. The upper edge of the barrel 8 is provided with a circumferential flange 10′, and is further provided with a flexible resilient washer 11 which is adapted to be grasped by the fingers for pulling the inner barrel 8 into any desired extended position. The washer 11 is of a greater diameter than the inner barrel flange 10′. The lower end of the inner barrel 8 has a contracted neck portion 12 provided with a liquid passage or opening 13.

Surrounding the lower half of the neck 12 of the inner barrel 8 is a rubber piston ring 14, and surrounding the remainder or upper portion of the neck 12 is a piston ring formed by wrappings of asbestos cord 15. It will be observed that the ring 14 and cord 15 form a continuous cylindrical packing ring of considerable length thereby providing a packing or piston ring which cannot leak, and one which keeps the inner barrel parallel with the outer barrel in its reciprocating movements, thereby preventing a wabbly movement of the inner barrel 8 while being reciprocated, as is manifest.

The medical tablet holder consists of a removable bottle or barrel 16 having a closed lower end and an open upper end the latter adapted to receive a suitable stopper 17, as clearly shown in Figs. 1 and 4. This removable holder 16 is adapted to retain tablets or powder, or medicament in either a dry or liquid state, as desired.

The operation of the device is as follows: It will be observed, that when the device is used as an eye-dropper, that the liquid may be carried within the inner barrel 8, as clearly shown, for instance, in Fig. 2. When it is desired to transfer a portion of the liquid within the barrel 8, into the outer barrel, the piston barrel 8 is extended until sufficient liquid has been transferred. After a sufficient amount of liquid has been transferred, the closure or cap 6, of the nozzle 4, is removed and the device is ready for use as an eye-dropper. Gently pressing upon the inner barrel will cause the liquid to be dis-

charged from the nozzle 4 in drops as fast or as slow as may be desired. The drops are regulated by the pressure applied to the inner barrel 8, as is manifest. If, after the treatment, there is any liquid remaining in the outer barrel 1, it may be retransferred to the inner barrel 8 by replacing the closure 6 on nozzle 4, removing stopper 10, from barrel 8, and then forcing the barrel 8 back into its closed or innermost position in the outer barrel 1, as is manifest.

At no time after the outer-barrel 1 is empty, even though the cap 6 is removed, will the contents run from the liquid medicine holder 8 into the barrel 1, unless an extended movement is imparted to the barrel 8. It will thus be seen that, where expensive medicine is contained in barrel 8, that there is no leakage thereof into the barrel 1, unless desired. The liquid at no time comes in contact with metallic or other materials which may cause a reaction.

When used as an ordinary syringe, the medicament holder 16 is removed from the inner barrel 8 after the stopper 10 has been removed. Liquid is then poured into the inner barrel 8 and a tablet dropped into the liquid. These operations are, preferably, adapted to be performed while the inner barrel 8 is in a closed position. While the cork or stopper 10 is removed, the barrel 8 is withdrawn or extended a suitable distance thereby causing the liquid, or part of it within the barrel 8 to be transferred into the outer barrel 1, as clearly shown in Fig. 3. After the inner barrel 8 has been extended and the desired amount of liquid transferred to the outer barrel, the stopper 10 is again inserted into the upper open end of the barrel 8, and the closure or cap 6 is then removed from the nozzle 4, of the outer barrel 1. After these operations, the device is ready for an injection, as is manifest.

It will be observed, that the syringe may be filled in the usual way, by merely removing the closure or cap 6 from the nozzle 4, and without removing the medicine or tablet holder 16 by merely withdrawing or extending the inner barrel 8, as is manifest.

When used as a hypodermic syringe, a hypodermic needle 7 is passed through the closure or cap 6 and through the opening or passage 5 of the nozzle 4 into the interior of the outer barrel 1. The medicament in liquid form for a hypodermic injection is placed into the outer barrel 1 and the medicine holder of bottle 16 is carried within the inner or piston barrel 8 thereby permitting greater force to be applied to the discharge of the liquid through the needle 7, as is manifest.

The many advantages of the herein described invention will readily suggest themselves to those skilled in the art to which it appertains.

From the foregoing description, it will be seen that we provide a device which is simple and cheap in construction, one that may be easily and readily charged with the desired medicated solution of definite strength, predetermined quantity, and always ready for use when desired.

What we claim is:

1. In a device of the class described, in combination, an outer hollow cylindrical barrel having an open upper end and a nozzle formed at its lower end provided with a liquid passage, a closure for said nozzle capable of receiving a hypodermic needle, an inner plunger-barrel having an open upper end, a stopper for said upper open end, a flange formed at the upper edge of said inner plunger-barrel, a finger engaging washer surrounding the upper edge of said plunger-barrel and adapted to engage said flange, a cylindrical neck formed at the lower end of said inner plunger-barrel having a small liquid passage, a packing forming a piston-head carried by said cylindrical neck and adapted to engage the inner wall surface of the outer hollow cylindrical barrel, said plunger-barrel adapted to receive a liquid medicament which upon an outer stroke of the plunger-barrel, when the stopper is removed, is all or partly transferred into the outer hollow cylindrical barrel below the piston-head and ready to be forced out of the aforesaid nozzle when the stopper is applied to the plunger-barrel, said liquid medicament if not all forced out of the outer hollow cylindrical barrel being retransferred back into the inner plunger-barrel by a downward stroke of the plunger-barrel, when the stopper is removed, said stopper adapted to be reapplied to the plunger barrel when the liquid medicament has been transferred thereinto.

2. In a device of the class described, the combination with an outer barrel having an open end and a nozzle formed at its lower end provided with a liquid passage, a soft rubber closure for said nozzle capable of receiving a hypodermic needle, an inner barrel having an open upper end, a stopper for said open end, a flange, for the upper edge of said inner barrel, a finger engaging washer surrounding the upper end of said barrel and adapted for engagement with said flange, a cylindrical neck formed at the lower end of said inner barrel having a liquid passage, a rubber piston-ring mounted on the lower end of said neck, an asbestos piston-ring mounted upon the upper portion of said neck and engaging the upper face of said rubber piston-ring.

3. In a device of the class described, in combination, an outer hollow cylindrical barrel having a nozzle formed at its lower end provided with a liquid passage and an open upper end, a closure for said nozzle,

a plunger-barrel having a cylindrical neck formed at its lower end provided with a liquid passage, a packing carried by said neck and within said outer hollow cylindrical barrel, a stopper for the plunger-barrel and a medicine supply bottle capable of being carried within said plunger-barrel when the plunger-barrel is not filled with a liquid medicament.

In testimony whereof, we have hereunto signed our names to the specification.

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