Dec. 12, 1939. Y. H. KURKJIAN 2,183,482

INJECTOR

Filed Dec. 23, 1936

Fig. 1.

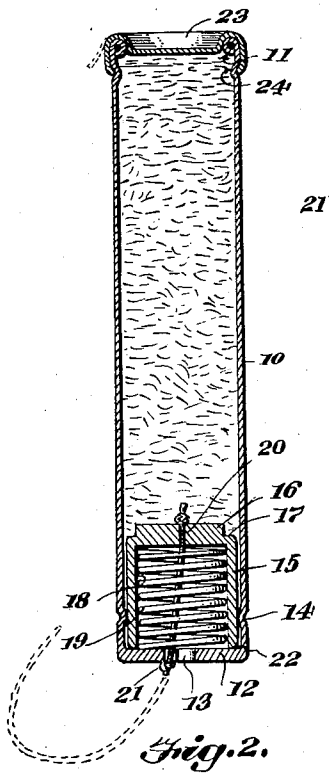


Fig. 4.

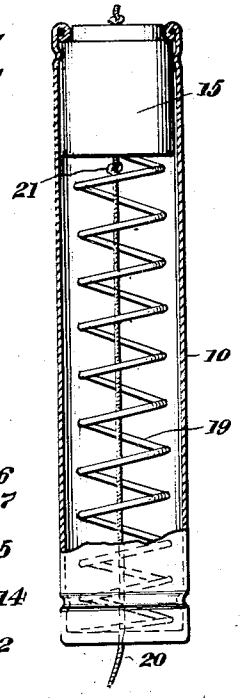


Fig. 6.

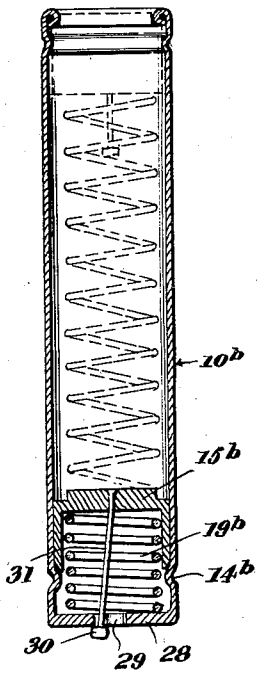


Fig. 8.

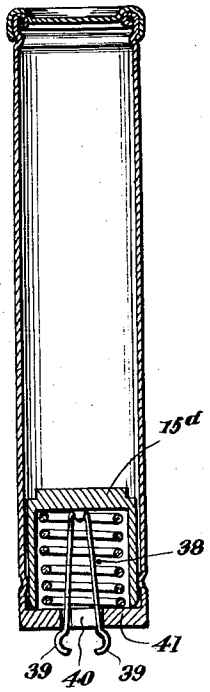


Fig. 2.

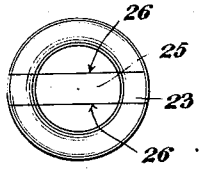


Fig. 5.

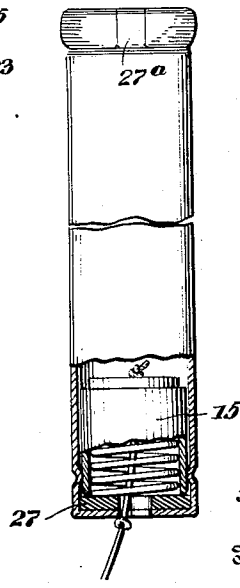


Fig. 7.

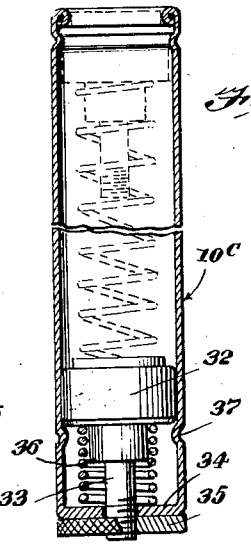


Fig. 3.

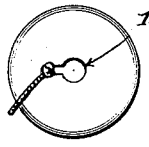
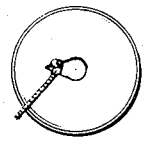


Fig. 9.



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UNITED STATES PATENT OFFICE

2,183,482

INJECTOR

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Application December 23, 1936, Serial No. 117,407

1 Claim. (Cl. 128—261)

This invention relates to injectors and has for one of its objects the production of a simple and efficient individual non-refillable injector especially adapted for use in injecting a medical preparation, jelly, antiseptic, and the like, into the vagina, or rectum, whereby a measured quantity of the injected preparation may be automatically discharged into the body cavity.

Another object of this invention is the production of a simple and efficient sanitary, individual non-refillable injector which is filled by the producer and sealed until actually used by a patient, thereby insuring the quality, quantity and sterilized condition of the preparation within the injector.

Other objects and advantages of the present invention will appear throughout the following specification and claim.

In the drawing:

Figure 1 is a vertical section through the injector showing the plunger in a retracted position;

Figure 2 is a top plan view of the injector;

Figure 3 is a bottom plan view thereof;

Figure 4 is a vertical sectional view, certain parts being shown in side elevation illustrating the ejecting plunger in an extended position;

Figure 5 is a side elevation of the injector, certain parts being shown in section;

Figure 6 is a vertical sectional view through a modified form of the injector;

Figure 7 is a vertical sectional view through a still further modified form of the injector;

Figure 8 is a fragmentary sectional view of a still further modified form of the injector illustrating a modified type of means for holding the plunger in a retracted position;

Figure 9 is a bottom plan view of a further modified form of the injector illustrating a substantially V-shaped slot for engaging the retaining cord.

By referring to the drawing, it will be seen that 10 designates the body of the injector which preferably comprises an elongated hollow tubular structure having an open outer end, the outer edge of which is rolled inwardly, as indicated at 11 in Figure 1, to constitute a plunger stop as will be hereinafter described. The opposite end of the body 10 is preferably thicker, as at 12, to provide a bottom, which bottom is provided with a suitable key-hole slot 13. The body 10 is provided preferably near the bottom 12 with an inwardly pressed annular bead 14 for tightly and frictionally engaging the outer face of the ejecting plunger 15.

The ejecting plunger 15 preferably comprises an inverted cup-like member open at its lower end and closed at its upper end, the upper end having a circularly projecting reduced neck 16 for fitting snugly in engagement with the inwardly rolled portion 11 of the body 10, as shown in Figure 4. A shoulder portion 17 is formed around and below the neck 16. The ejecting plunger 15 is provided with a pocket 18 in which is preferably placed an expansion coil spring 19, the coil spring engaging the under face of the plunger 15 and resting upon the bottom 12 of the body 10, as shown in Figure 1. A retaining cord 20 is secured to the top of the plunger 15 at one end thereof, and the cord is provided intermediate its end with a knot 21, which knot is adapted to engage the under face of the bottom 12 when the cord 20 is forced into the key-hole slot 13, as shown in Figures 1 and 3, thereby holding the plunger 15 in a retracted position. The plunger 15 has its lower edge beveled, as indicated at 22, to cause the plunger to easily ride over the inwardly pressed annular bead 14 and the lower edge of the plunger is adapted to fit snugly against the bottom 12, the bead 14 firmly and frictionally engaging the outer face of the plunger 15, thereby providing a seal both at the bottom edge of the plunger and also upon the sides thereof.

The cord 20 preferably extends beyond the knot 21, such as is illustrated in dotted lines in Figure 1 and in full lines in Figure 4 so that the plunger 15 may be pulled from the position shown in Figure 4 to the position shown in Figures 1 and 5 while filling the body 10 with a medical preparation, jelly, antiseptic, or the like. After the plunger has been pulled from the position shown in Figure 4 to the position shown in Figure 1, the cord is severed close to the knot 21, so that when the plunger 15 has once been released, it will be practically impossible to refill the device or at least the refilling thereof will be difficult and hence such refilling will be discouraged. After the body 10 has been filled with a suitable medical preparation and the like, a removable cap 23 may be placed over the outer end to fit over the inwardly rolled portion 11, as shown in Figure 1, and the edges of the cap may be crimped to fit in the inwardly pressed bead 24. This cap is preferably provided with a tongue 25 which is scored, as at 26, so that the tongue may be torn easily by engaging the portion 27 and facilitating the removal of the cap 23. It is not desired to limit this invention, however, to any particular type of closure for the

outer end of the body 10. If desired, the slot for holding the knot end of the plunger retaining cord may be of a V-shaped formation, as indicated at 13a, as in Figure 9.

It should be understood that the body 10 and other parts may be made of any suitable or desired material without departing from the spirit of the invention. The body 10, as well as the cap 23, however, may be formed of Celluloid, metal, or other material. Because of the character of the material, the inwardly pressed bead 14 will allow a sufficient slight expansion to permit the plunger 15 to slide and ride over the same and also to provide a frictional tight seal around the side of the plunger 15.

As shown in Figure 5, a compressible sealing washer 27 may be employed formed of rubber, or other suitable material, against which the lower end of the ejector plunger may fit to provide a seal around the lower edge of the plunger, which is indicated in this view as 15a.

In Figure 6, there is shown a modified form of the invention wherein a body 10b is illustrated similar to the body 10, having a bottom 28 in which is formed a key-hole or similar aperture 29 for receiving an enlarged head 30 of a depending rod 31 carried by the ejecting plunger 15b similar to the plunger 15 shown in Figure 1. In this form, the lower edge of the plunger 15b may rest upon the inwardly pressed annular bead 14b, as shown in Figure 6, and an expansion coil spring 19b is provided similar to the coil spring 19 shown in Figure 1.

In Figure 7 there is shown a still further modified form of my invention wherein a body 10c is shown in which is slidably mounted a plunger 32 having a depending threaded pin 33 which extends through the apertured bottom 34 over which is threaded a knurled nut 35. An expansion coil spring 36 is interposed between the bottom 34 and the inner end of the plunger 32 so that the plunger 32 will be automatically forced to the position shown in dotted lines in Figure 7 when the nut 35 is removed from the pin 33. In this form shown in Figure 7 the plunger 32 when in a retracted position preferably rests upon the inwardly pressed annular bead 37.

By referring to Figure 8 it will be seen that a further modified form of fastening means for the plunger is illustrated wherein a spring wire fastener 38 is secured to the plunger 15d, the spring wire fastener having its outer ends oppositely bowed, as at 39, so that these bowed portions may be compressed toward each other to pass through the aperture 40 in the bottom 41 and when released may spread apart and overhang the edges of the aperture retaining the plunger 15d in a retracted position. When these bowed portions 39 are squeezed toward each other by the fingers of the operator, they will slip through the aperture 40 allowing the plunger 15d to automatically move to an extended position.

In the type as shown in Figure 1, it will be seen that in order to release the plunger 15, the operator may merely move the knot 21 to a position to slip through the aperture 13, the coil spring 19 automatically shooting the plunger toward the discharge end of the body and thereby forcing the content of the body out through the open end thereof. After the content of the body has been discharged, the container may be discarded.

It should be noted that the present device provides an injector within which a measured quantity of medical preparation, jelly, antiseptic, or the like, may be placed, and through the medium of the cap 23, this preparation will be kept in a sterilized condition, the cap 23 only being removable when ready for actual use. In view of the difficulty and practical impossibility of returning the plunger 15 to a retracted position, the refilling of the body will be discouraged and rendered practically impossible without injury to the container, especially if formed of Celluloid and like material. In this way the product will be protected from the producer's standpoint, in that the containers may be distributed in a sealed condition thereby guaranteeing the purchaser as to the quality, quantity and sterilized condition of the product.

While the present device is especially adapted for injecting a medical jelly, and the like, into the vagina for treatment of certain vital organs, the injector is adapted for use in the treatment of diseases of the rectum, and has a particular advantage in assuring a perfect discharge of a measured quantity of a desired medical preparation, jelly, antiseptic, or the like.

The injector may be placed, if desired, in a suitable Cellophane or other container, whereby the entire body may be sealed in a sanitary condition and the patient using the same may have the assurance of protection that the device is sanitary and properly sterilized.

Having described the invention, what is claimed as new is:

A sanitary injector of the class described comprising a hollow cylindrical body having a removable closure for its front end, a plunger slidable in said body, an ejecting means for said plunger operating in said body between the plunger and the rear end of the body and normally urging the plunger outwardly towards the front end of the body, a bead extending about walls of the body near the rear end thereof and projecting inwardly into position for engagement by the plunger to provide a tight seal around the plunger when the plunger is in a retracted position whereby leakage of material in the body in front of the plunger to a point behind the plunger and contact thereof with the ejecting means will be prevented, and means for releasably holding the plunger in a retracted position in engagement with the bead.

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