Fig. 1

Fig. 2

Fig. 3

Fig. 4

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This invention relates to sealed medicament-dispensing containers or so-called cartridges for use in a hypodermic syringe of the type in which such a cartridge is embodied as a separable element adapted to be collapsed to expel its contents through a canula piercing the cartridge.

The subject of the invention is a collapsible cartridge of the plugged tube type embodying certain features originally disclosed in my co-pending application filed July 1, 1921, Ser. No. 481,997, of which this application is a division; the said cartridge embodying a generic invention more broadly claimed in said original application.

In the drawings:

Fig. 1 is a side elevation of a cartridge embodying the invention;

Fig. 2 is a longitudinal section thereof;

Fig. 3 shows a cartridge in association with the canula and plunger of a syringe-like instrument with which the cartridge is intended to be combined;

Fig. 4 shows the cartridge collapsed.

The cartridge embodies a rigid tube 5 of substantially uniform bore. This may be a section of commercial glass tubing, which, though ordinarily having irregularities in bore, may be considered as of substantially uniform bore in the sense of a straight bored tube through which a resilient plug may be pushed. Sealing closures are provided by elastic stoppers 6 and 6′, which are preferably of molded rubber, fitted tightly in opposite ends of the tube. In use in an injectable canula and plunger of a syringe-like instance the plug 6′, is pierced axially by a canula, represented in Fig. 3 by the double pointed hypodermic needle 9; and the other plug 6′ is adapted to be pushed by the plunger 10 through the tube to expel the contained anesthetic or other medicament solution through the canula. The plug 6′ is shown as a thick walled cup-shaped plug with its cavity facing outward. The cavity provides the thick walled annular portion 7 and closed or imperforate thick walled inner end portion 8, which is of reduced thickness at the central part of the plug. This cup-shaped plug provides a substantial length of exterior cylindric surface in tight frictional engagement with the tube and of substantially reduced axial thickness to be pierced by the canula, thus facilitating the piercing operation. While the inner imperforate wall 8 pierced by the canula is thin in relation to the length of the plug, it is of such substantial thickness as to enable the compressed stopper to form an effectual seal around the canula.

Before using the cartridge, the practitioner may pour an antiseptic fluid into the cavity of the plug and after a few moments pour out the fluid and then immediately pierce the plug so sterilized with a sterile canula.

As both plugs 6 and 6′ are substantially alike in the illustrative embodiment of the invention shown in the drawings, either may in this instance serve as the plug to be pierced or as the plunger plug to be forced into or through the tube to collapse the cartridge. When this form of plug with its cavity facing outward is used as a piston plug, it will be seen by reference to Fig. 3 that when the plug is forced in by the syringe plunger 10 the annular wall of the plug will be compressed and thereby forced tightly against the inner end of the tube and conform to irregularities in the bore of the tube during the ejecting action, promoting maintenance of a good seal.

I claim as my invention:

1. A cartridge for hypodermic syringes comprising a sealed liquid container embodying a rigid tube of substantially uniform bore and stoppers in opposite ends of the tube, said stoppers comprising substantially cup-shaped thick walled plugs of resilient material arranged with their cavities facing outwardly, said plugs adapted one to be pierced by a canula and the other to be forced through the tube to expel its contents through such canula.

2. A cartridge for hypodermic syringes comprising a sealed liquid container embodying a rigid tube of substantially uniform bore and stoppers in opposite ends of the tube, said stoppers comprising substantially cup-shaped plugs of resilient material
arranged with their cavities facing outwardly, either of said plugs adapted to be forced through the tube to expel its contents through a canula thrust through the other plug.

3. A cartridge for hypodermic syringes comprising a sealed medicament container embodying a rigid tube of substantially uniform bore, having in one end a sealing closure to be pierced by a canula, and having in its opposite end a piston plug comprising a thick walled cup-shaped stopper of resilient material arranged with its cavity outward and presenting a thick walled tubular flexible outer end portion to be engaged by a plunger to push the piston plug through the tube.

In testimony whereof, I have signed my name to this specification.

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CERTIFICATE OF CORRECTION.

Patent No. 1,783,956. Granted December 9, 1930, to

HARVEY S. COOK.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 36, strike out the words "the canula and plunger of a syringe-like" and insert instead instrument, one of these plugs, for; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 17th day of February, A. D. 1931.

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