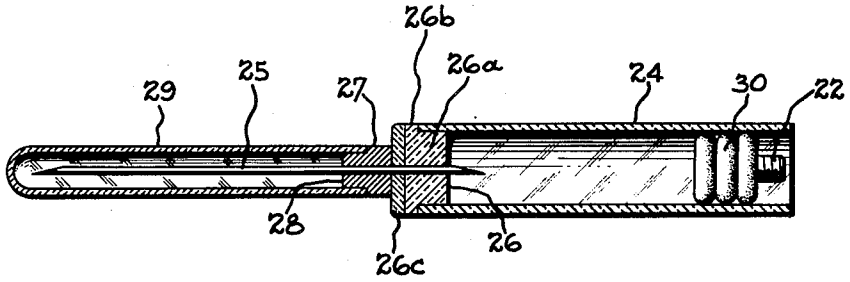
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MEDICATION CARTRIDGE-NEEDLE-NEEDLE GUARD
UNIT FOR HYPODERMIC SYRINGE
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INVENTOR.
CARL M. MELTON.
BY
DES JARDINS, ROBINSON & KEISER.
by Albert F. Robinson
HIS ATTORNEYS

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MEDICATION CARTRIDGE-NEEDLE-NEEDLE GUARD UNIT FOR HYPODERMIC SYRINGE

Carl M. Melton, Salt Lake City, Utah, assignor of one-third to Morton Newburger, Dayton, Ohio

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3 Claims. (Cl. 128—218)

This invention relates to an hermetically sealed hypodermic medication unit, and more particularly to one adapted to be used as a cartridge in a syringe in which it is adapted to be inserted for being detachably positively engaged with an operating plunger mounted in the syringe.

This case is a division of my application Serial No. 776,908, filed September 30, 1947 which issued March 16, 1954, as Patent No. 2,672,142 and is incorporated herein in full as a part of the instant disclosure.

The medication unit is especially adapted for use as a cartridge in the syringe of my said patent in which it is adapted to be inserted for discharge of the medication carried thereby, after which the used cartridge is removed to be replaced by a new one.

One of the main objects of the invention is an hermetically sealed disposable medication unit.

Another object of the invention is an hermetically sealed medication unit provided with a piston adapted to be positively detachably engaged with a plunger.

Another object of the invention is an hermetically sealed medication unit which is simple in construction and can be conveniently used.

Still another object of the invention is an hermetically sealed medication unit which is complete in and of itself and adapted to be used with or without a syringe.

A still further object of the invention is an hermetically sealed medication unit in which means is fixed to the needle for retaining it in the mounting.

Further objects and objects relating to details of construction and economies of operation, will readily appear from the detailed description to follow. In one instance I have accomplished the objects of my invention by the device and means set forth in the following specification. My invention is clearly defined and pointed out in the appended claims. A structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawing in which the single figure is a longitudinal sectional view of a medication unit embodying my invention.

Referring specifically to the drawings in which like numerals designate like parts, the medication unit comprises a tube **24** of any transparent material, such as glass or plastic, having an hypodermic needle **25** mounted in one end. It may be conveniently mounted in the tube by a resilient stopper **26**, such as rubber, preferably having a portion **26***a* fitting into the end of the tube and provided with a head portion **26***b*. The head portion, if there be any head portion on the stopper, abuts against the end of the tube **24**. The stopper can be formed without any head portion, but the head is preferable to protect the end of the tube and provide a cushion between it and the end wall of the barrel chamber of a syringe in which the unit may be inserted as a cartridge. A hub projection **27** is mounted on the needle and provided with a free end portion **28** of reduced cross-section to project and tightly fit into the open end of a protective sheath **29** for hermetically sealing the needle. This protective sheath may be of any suitable material, such as glass, plastic, or the like, and preferably transparent. The opposite end of the protective sheath is closed. The hub projection **27** may be of metal, rubber, plastic or any suitable material which will make a tight fit with the sheath. There is also a head **26***c* which may be a part of or separate from the hub. This head is of sufficiently large diameter to seat against the end wall of the chamber of a syringe barrel and is secured fast to

the needle so that the needle cannot be pulled out of the stopper mounting **26**. This head **26***c* may be of any material but is preferably of rubber, and more especially so if the stopper **26** is not provided with an enlarged head **26***b*, to serve as a gasket together with or without the enlarged head **26***b* of the stopper **26** between the end of the barrel chamber and the end of the tube **24** of the medication unit. These resilient parts, or either of them, allow for any tolerance so that the medication unit can be tightly fitted in a syringe.

A piston **30** is fitted in the opposite end of the tube **24** and has a stub shaft **22**, screw-threaded on the exposed end, projecting from one end thereof. A medication is placed in the tube unit between the piston and the stopper or needle mounting.

The medication unit comes all prepared with the medication ready for use and needs only to be inserted in a syringe and the guard sheath removed just before use. The handle of the syringe is then forced forward to move the piston. The medication may be one to be used intramuscularly or intravenously, and the plunger handle is constructed to be screw-threaded to the stub shaft **22** of the piston, thereby permitting the piston to be retracted as well as pushed in. A slight retraction of the piston, after insertion of the needle, will disclose whether a blood vessel has been penetrated, for, if it has, blood will show in the medication through the transparent sheath. Thus, an intramuscular or intravenous injection can be positively made.

The medication unit permits complete sterile technique for hypodermic injections of any material and eliminates the time and trouble for preparing and keeping the needle sterile. Only one syringe needs to be carried by a doctor, which syringe can be used repeatedly regardless of the medication involved. Different units have different types of medication, any of which could be selected for use with the single syringe. A used medication unit is disposed of after use, and a new one is used. Thus, there is no possibility for contamination. The medication units may be labeled for identification as to the medication, and the proper ones may be selected for loading into the syringe for application.

The needle is not only combined with the medication unit but a sheath therefor is employed to protect the needle and facilitate insertion of the unit in the syringe. The medication, needle and shield comprise the medication unit which is assembled with the needle hermetically sealed, the needle shield not being removed until the hypodermic injection is to be given.

The medication unit is adapted to be used with or without a syringe, or any particular one. Means is provided for fixing the needle to the mounting to prevent it being pulled out or sliding therein. Such means is positioned to seat against one end of the barrel chamber of a syringe if a syringe be used, or to be grasped in one hand while any plunger means is fitted to the piston.

While the invention has been described in detail, it will be understood that there may be various changes in details of construction without departing from the spirit of my invention, and, therefore, I claim my invention broadly as indicated in the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by U. S. Letters Patent, is:

1. A medication cartridge-needle-needle guard-unit as an article of manufacture, adapted to be readily loaded in and unloaded from the barrel of the syringe, comprising a tube, containing a medication, closed at one end by a piston and at its opposite end by a stopper fitted thereto and having a seating means for contacting with one end of the syringe barrel, said stopper provided with an head portion projecting from a portion to which the end of the tube is fitted, a hub provided at one end of the stopper having a cylindrical wall portion offset from the seating means for projecting through the end of the syringe barrel and terminating in a free end of reduced cross-section, a needle projecting through the hub and stopper and secured thereto, and a needle guard fitted to the reduced free end of the hub, said needle guard being of a cross-section not greater than the cylindrical wall portion of the hub adjacent the seating means.

2. A cartridge-needle unit adapted to be inserted and used in a rigid syringe body provided with a push rod at its proximal end and an opening at its distal end, said unit comprising: a transparent ampule closed at one end with a slidable plunger provided with a threaded connection for the push rod of the syringe body, a penetrable closure sealing the distal end of the ampule, an injection needle secured fast in an head associated with said distal end closure of the ampule, the proximal end of the needle passing through the penetrable closure and communicating with the interior of the ampule and the distal portion of the needle extending outwards from the head and an hub adjacent said head, the hub at its distal end having a portion of reduced diameter, and a sleeve surrounding the distal portion of the needle, said sleeve having an outside diameter less than the inside diameter of the distal opening in the syringe body, forming a tight joint with the reduced portion of the hub and surrounding and enclosing the distal portion of the needle.

3. A cartridge-needle unit adapted to be inserted and used in a rigid syringe body provided with a push rod at its proximal end and an opening at its distal end, said unit comprising: a transparent ampule closed at one end with a slidable plunger provided with a readily detachable interengaging connection for the push rod of the syringe body, a penetrable closure sealing the distal end of the ampule, an injection needle secured fast in an head associated with said distal end closure of the ampule, the proximal end of the needle passing through the penetrable closure and communicating with the interior of the ampule and the distal portion of the needle extending outwards from the head and an hub adjacent said head, the hub at its distal end having a portion of reduced diameter, and a sleeve surrounding the distal portion of the needle, said sleeve having an outside diameter less than the inside diameter of the distal opening in the syringe body, forming a tight joint with the reduced portion of the hub and surrounding and enclosing the distal portion of the needle.

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