This invention relates to containers or casings for hypodermic syringes.

A container for a hypodermic syringe should fulfill a number of requirements.

which are occasioned both by the nature of the hypodermic syringe itself and by the use to which it is put. Hypodermic syringes as ordinarily on the market are made with a glass barrel, a glass plunger and a metal tip detachable from the barrel. Both the glass parts and the metal tip are easily broken, and it is necessary, therefore, that in carrying them they be protected from injury. Hypodermic syringes are, of course, used to administer various drugs directly into the body, and it is of prime importance that they be strictly sterile. Ordinarily this sterility is secured by boiling the syringe or immersing it in alcohol or other antiseptic solution immediately previous to the time it is used.

Inasmuch as the hypodermic syringe has become one of the most essential instruments in emergency cases, it is important that some means be provided for carrying the syringe in a safe, sterile and convenient manner. It is important that it be carried conveniently in order that the doctor may have it with him at all times. It is important, moreover, that the doctor have with him not only the syringe but the necessary drugs, and any container for the syringe should therefore provide some means of holding the necessary drugs separate and apart from the syringe.

So far as I am aware, there has never been a container for a hypodermic syringe that combines these qualities. Some containers which have been proposed are bulky and not adapted to be conveniently carried at all times; others are mere carrying cases which do not keep the syringe sterile; others which do maintain the syringe part sterile contain antiseptic fluids which are likely to spill and make the use of the syringe inconvenient, and at times even useless.

The object of this invention, therefore, is to provide a compact form of container for a hypodermic syringe and the drugs to be used therewith which will protect the syringe and prevent it from breakage while it is being carried, which will maintain it at all times sterile and yet ready for instant use without destroying the sterility, and which is of a size and shape that it may be conveniently carried in a vest pocket in the manner of a fountain pen so that it may be carried at all times.

I accomplish this object by providing a rigid container having three compartments—one for the needle tip, one for the glass barrel and plunger, and the other for the drugs—and shaped substantially like a fountain pen. The compartment containing the tip may be especially shaped to retain the tip, but is designed to be attached to the compartment containing the barrel and plunger so that an airtight joint is formed. This end is, of course, preferably accomplished by merely screwing the two parts together. The compartment containing the drugs is also preferably attached at the other end of the compartment containing the barrel and plunger by a screw thread forming an airtight joint.

The syringe is held disassembled in two compartments rather than assembled in one compartment, because this facilitates its use without likelihood of contamination. By the construction which I provide, the syringe barrel may be attached to the needle tip, which is held in its proper compartment all without ever touching the needle tip.

The permanent sterility of the syringe is maintained by the airtight joint, which connects the two compartments containing the syringe parts. When the syringe and container are once sterilized in the doctor's office and the syringe is placed under sterile conditions within the compartments of the container and the two compartments locked together, the syringe will be maintained in a sterile condition for an indefinite period of time.

An embodiment of my invention is shown, by way of example, in the drawing, in which

Fig. 1 represents a sectional elevation of the container showing the positions of the needle, the syringe barrel and the vials for the drugs;

Fig. 2 represents an elevation of the container showing the attractive appearance of the device and its convenient form;

Fig. 3 represents an end view of the cap showing the shoulders which hold the needle in position;

Fig. 4 is a cross-sectional view through
Fig. 5 represents a different form of drug storage chamber; line 4-4 of Fig. 1, showing the cells for storing the drug vials;

Fig. 6 is a cross-sectional view through line 6—6 of Fig. 1.

In the drawing 10 represents the casing or container for a hypodermic syringe and the drugs to be used therewith. The container 10 comprises the main body portion or barrel 11, which is adapted to receive the syringe barrel 15. The open end of the main body portion 11 is sealed by a cap 12, which is adapted to receive and retain the hypodermic needle 14. The needle 14 is held in the cap 12 by means of the shoulders 17 formed in the cap and clearly shown in Figs. 1 and 3. The hollow member 13 is attached in a convenient manner to the closed end of the main body portion 11. The member 13 is provided with cells or compartments 18, as shown in Figs. 1 and 4. The cells 18 are adapted to receive the drug vials which contain the drugs to be used with the hypodermic syringe. In case it is desired to use drugs which are prepared in the form of tablets or in any other form, an alternative form of hollow member 19, shown in Fig. 5, may be substituted for the member 13.

The container is composed of any suitable material, such as aluminum, bakelite, hard rubber, etc., which will permit of an effective seal between the barrel 11 and its closure cap 12. There should be a lock joint between the cap 12 and the barrel 11, and this may be effected by a screw thread joint 20, as shown in the drawing, or any other suitable means.

In preparing the container for use, the barrel 11, cap 12, hypodermic needle and barrel are sterilized, for instance by boiling in water. The hypodermic needle 14 is inserted in the cap 12 by means of some sterilized instrument, and is turned so that the lower end of the needle will engage the shoulders 17 and be retained in the cap thereby. The syringe barrel 15 is then placed in the main body portion or barrel 11 with the nipple 21, at the bottom of the barrel 11. The cap 14 is then screwed into the barrel 11, thus sealing the container. The hypodermic needle and barrel thus sealed are kept indefinitely in a sterile condition and can be used after long periods without danger of infection.

The drug vials 16 are placed in the member 13, or the drug tablets or solution are placed in the member 19, and one or the other is connected to the closed end of the barrel 11.

The container 10 is now completely assembled and contains all the necessary equipment for a hypodermic injection in an aseptic condition. The container is small and compact and may be easily carried in a vest pocket.

In service when it is desired to use the hypodermic syringe, the cap 12 is unscrewed from the barrel 11. As the needle is held 70 in the cap 12 by the shoulders 17, no particular care is needed in this operation. The syringe barrel 15 is then removed from the barrel 11 and the nipple 21 on the syringe barrel 15 is inserted into the lower end of the needle 14, which is still in the cap 12.

The needle 14 is then turned by rotating the syringe barrel 15, thus disengaging the lower end of the needle 14 from the shoulders 17 and permitting the removal of the cap 12.

The hypodermic syringe is now assembled and is filled with the drugs contained in member 13 or 19, as the case may be by removing the plunger 22 from the syringe barrel 15 and pouring the liquid drug therein. The plunger 22 is then replaced and the syringe is ready for use.

In assembling the syringe, neither the needle 14 nor the nipple 21 is touched by hands or instruments, thus eliminating all danger of contamination or infection.

I claim:

1. In a hypodermic syringe container adapted to protect a syringe from breakage, maintain it in a sterile condition and serve as a holder for the needle to permit convenient assembly of the syringe without contamination of the syringe, comprising an open-ended receptacle for the syringe barrel, a closure member for said receptacle adapted to receive the hypodermic needle, and means within said closure member for retaining the hypodermic needle within said member.

2. A hypodermic syringe container adapted to protect a syringe from breakage, maintain it in a sterile condition and serve as a holder for the needle to permit convenient assembly of the syringe without contamination of the syringe, comprising an open-ended receptacle for the syringe barrel, a closure member for said receptacle adapted to receive the hypodermic needle, and means within said closure member for retaining the hypodermic needle within said member, said receptacle and closure member being provided with means for forming an airtight seal.

3. A hypodermic syringe container adapted to protect a syringe from breakage, maintain it in a sterile condition and serve as a holder for the needle to permit convenient assembly of the syringe without contamination of the syringe, comprising a closed tube separable intermediate its extremities, one of the separable portions of said tube having a cavity formed approximately to the shape of the syringe barrel, the other of the separable portions having a cavity formed ap-
proximately to the shape of the syringe needle, and means on the separable portion adapted to receive the syringe needle for retaining the syringe needle within said portion.

4. A hypodermic syringe container comprising a closed tube separable intermediate its extremities, each separable portion of said tube being formed of one piece, said separable portions having cavities respectively formed approximately to the shape of the syringe barrel and the syringe needle, said cavities decreasing progressively in diameter from the point of separation of said separable portions to prevent the syringe parts from being inserted into said cavities except in the manner desired and to render said cavities more accessible for cleaning, and means on said separable portions adapted to form an airtight seal between said separable portions, the separable portion formed approximately to the shape of the syringe needle being constructed to effect a maintenance of the needle so that the barrel may be attached to the needle before the needle is removed from said portion.

In testimony whereof I affix my signature.

DAVID LEE O'SULLIVAN.