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2,717,598

HYPODERMIC SYRINGE

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Fig. 1.

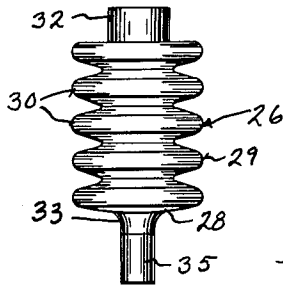


Fig. 2.

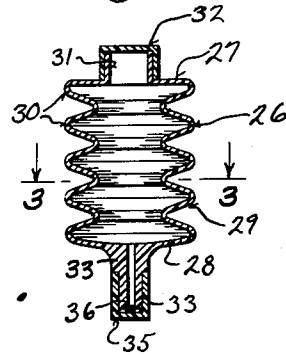


Fig. 3.

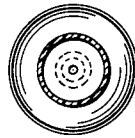


Fig. 4.

Fig. 5.

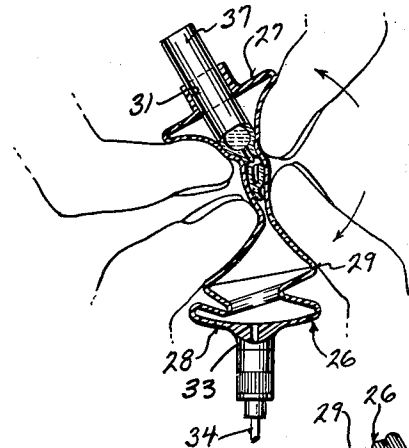


Fig. 7.

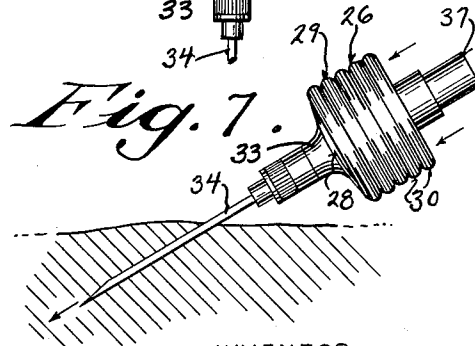
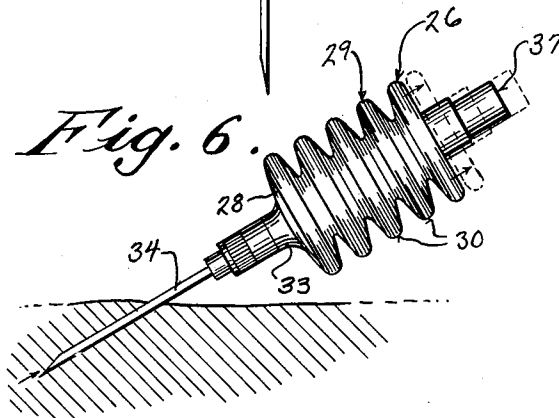


Fig. 6.



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HYPODERMIC SYRINGE

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1 Claim. (Cl. 123—216)

This invention appertains to a device for injecting medicants into the human system and for withdrawing blood for blood serology, and more particularly to a novel disposable hypodermic syringe.

One of the primary objects of this invention is to provide a hypodermic syringe embodying a minimum number of parts and which is of such an inexpensive nature, that the same, or the barrel portion thereof, can be discarded (if such should be preferred) after a use.

Another salient object of my invention is to provide a hypodermic syringe in which the barrel or body thereof constitutes the sole means for injection or aspiration, and whereby the necessity of a plunger in the barrel is entirely eliminated.

A further object of my invention is to provide a hypodermic syringe including a barrel or body formed from flexible plastic or like material, embodying a linear series of accordion pleats or bellows folds and having a neck at one end for receiving the desired needle, the accordion pleated body permitting the body to be collapsed for injection of medicants, or elongated for withdrawing blood from a vein or artery.

A further important object of my invention is to provide a hypodermic syringe in which the barrel thereof can be used as a package or container for drugs, as well for the administration of such drugs, the barrel or body being adapted particularly as a container for various penicillins, etc.

A still further object of my invention is the provision of a hypodermic syringe in which the barrel or body thereof can be used for drawing blood from a patient and then used as a container for sending the blood to health laboratories, via mail, etc., for blood surgery.

A still further important object of my invention is to provide a hypodermic syringe for the general use of administering of injectable medicants either subcutaneously, intramuscularly or intravenously, as well as withdrawing samples of blood for shipment.

With these and other objects in view the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed, and illustrated in the accompanying drawings, in which drawings,

Figure 1 is a side elevational view showing a desired form of the barrel of my syringe;

Figure 2 is a longitudinal sectional view therethrough;

Figure 3 is a transverse sectional view through the body or barrel taken on the line 3—3 of Figure 2, looking in the direction of the arrows;

Figure 4 is a longitudinal sectional view through the syringe with the caps removed from the opposite ends of the barrel and the needle connected with the neck of the barrel and the ampule containing the medicant inserted in the opposite end of the barrel;

Figure 5 is a view similar to Figure 4 but showing the neck of the ampule being broken to permit the flow of the medication from the ampule into the barrel;

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Figure 6 is a side elevational view of the syringe showing the same being used for intramuscular injection with the barrel being elongated to create negative pressure therein to determine if the needle is properly positioned in the muscles, and

Figure 7 is a view similar to Figure 6, but showing the barrel compressed for injecting the medication into the muscles.

Referring to the drawing, in detail, wherein similar reference characters designate corresponding parts throughout the several views, the syringe includes a barrel 26 preferably formed from flexible plastic. This barrel 26 embodies an outer wall 27, an inner wall 28 and a connecting side wall 29. The side wall 29 is provided with a desired number of accordion pleats 30, so that the barrel can be collapsed or extended, as the case may be. The outer wall 27 has formed thereon an entrance neck 31, which is closed by a removable cap 32. The inner wall 28 has formed thereon or permanently secured thereto a neck 33 for receiving a hypodermic needle 34. The neck is closed, until use, by a removable cap 35. The neck preferably has incorporated therein a screen 36, the purpose of which, will later appear.

In use of this form of my syringe, the needle is removed from its sheath and the cap 35 from the neck 33, after which the needle is associated with the neck. The cap 32 is now removed and an ampule 37, containing the desired drug, is inserted into the flexible body 26 through the neck 31. After the insertion of the ampule in the body, the neck of the ampule is broken in a manner, as shown in Figure 5, so that the contents of the ampule can be transferred into the body 26. The neck of the ampule can be weakened before insertion, if desired, by the use of a small file, in the ordinary way. The screen 36 prevents any fine pieces of glass from being injected into a patient. The contents of the ampule can be transferred into the barrel 26 by slightly tapping on the outer end of the ampule. In this case, the fluid in the ampule changes place with the air in the body of the syringe and the air is in the ampule and the medication is in the syringe.

As shown in Figure 6, the needle is inserted into the patient in the usual manner, and just prior to injecting the contents, the operator pulls back on the barrel. In this manner, a negative pressure is created within the syringe and if the needle is lodged in a vein or artery, blood will be aspirated back up into the syringe. In view of the fact that the neck is translucent, this can be observed by the operator. If, after aspirating, there is no blood drawn into the syringe, (see Fig. 7), the operator then pushes down on the barrel and by so doing compresses the contents of the syringe and forces it into the tissues of the patient. The needle is then withdrawn from the patient in the customary manner.

From the foregoing description, it can be seen that I have provided an exceptionally simple and inexpensive syringe in which the barrel is utilized for injection and aspiration without the use of any other parts, and such barrel can be used as a drug container for a drug, or as a container for mailing blood tests to laboratories.

Changes in details may be made without departing from the spirit or the scope of this invention, but what I claim as new is:

As a new article of manufacture, a barrel for a hypodermic syringe constituting the sole means for the injection of medication into the tissues, veins and arteries, formed from flexible material and having a linear series of accordion pleats extending approximately from one end thereof to the other, a hypodermic needle receiving neck on the forward end of said barrel, and a removable closure cap on said neck, the opposite end of said barrel

from said neck having a hollow stem, a removable closure cap on said stem, and said stem being adapted to receive an ampule containing a desired drug upon removal of the closure cap from the stem.

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