United States Patent

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[54] **SYRINGE GUIDE AND INDICATOR**
3 Claims, 7 Drawing Figs.

[52] **U.S. Cl.** ..... **128/272,** 128/218 C
[51] **Int. Cl.** **A61j 01/06,** A61m 05/18
[50] **Field of Search** ..... 128/218 C, 218 O, 218 M, 272

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ABSTRACT: An improved guide is provided for use with hypodermic syringes so as to facilitate the loading of the syringe from a bottle containing a drug, medicine, or other liquid. The improved guide has utility for both sighted and blind persons, since it permits the syringe to be held in proper relationship with the neck of the bottle containing the liquid, and since it serves to guide the needle part of the syringe through the cap and into the bottle a proper distance so as to assure the correct dosage. The guide may also include an adjustable stop member which serves to limit the loading stroke of the plunger part of the syringe so that a predetermined amount of the liquid is drawn into the syringe without the need for the careful reading of scales, calibrations or the like.

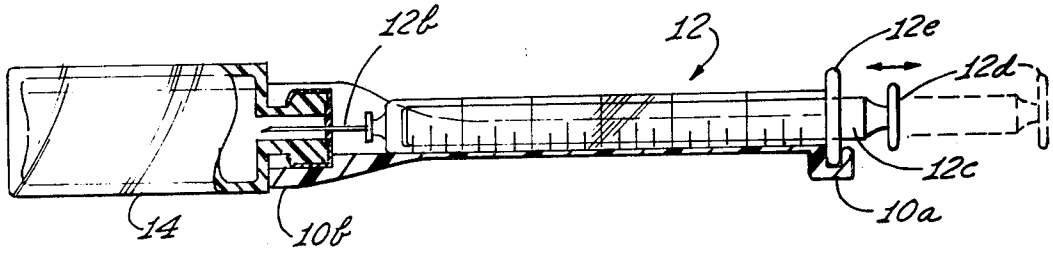


Fig. 1

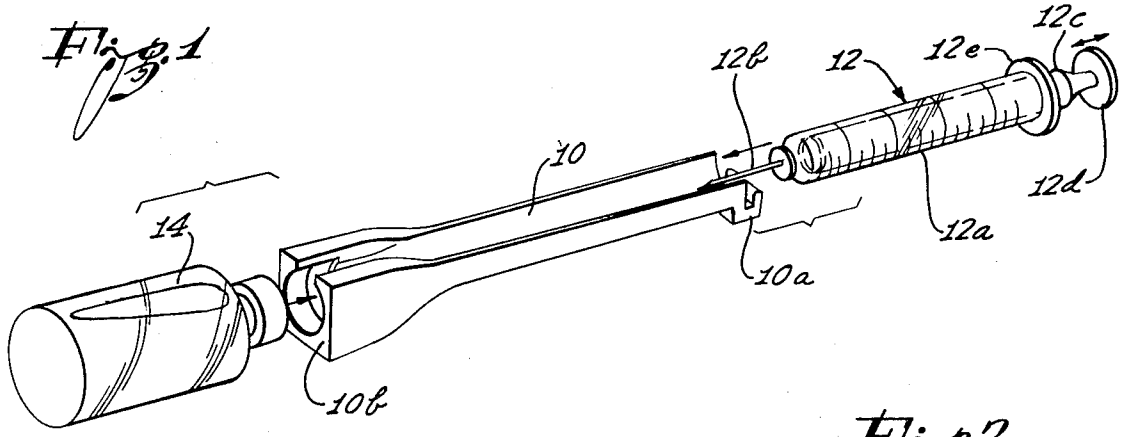


Fig. 2

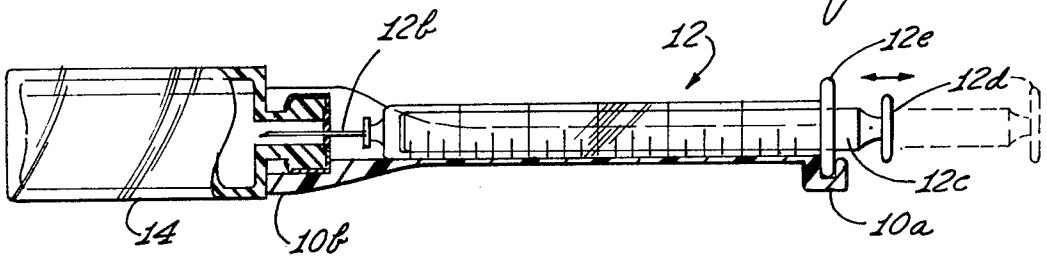


Fig. 3A

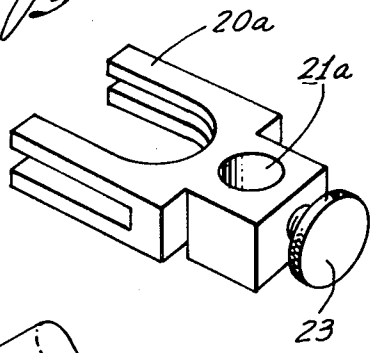
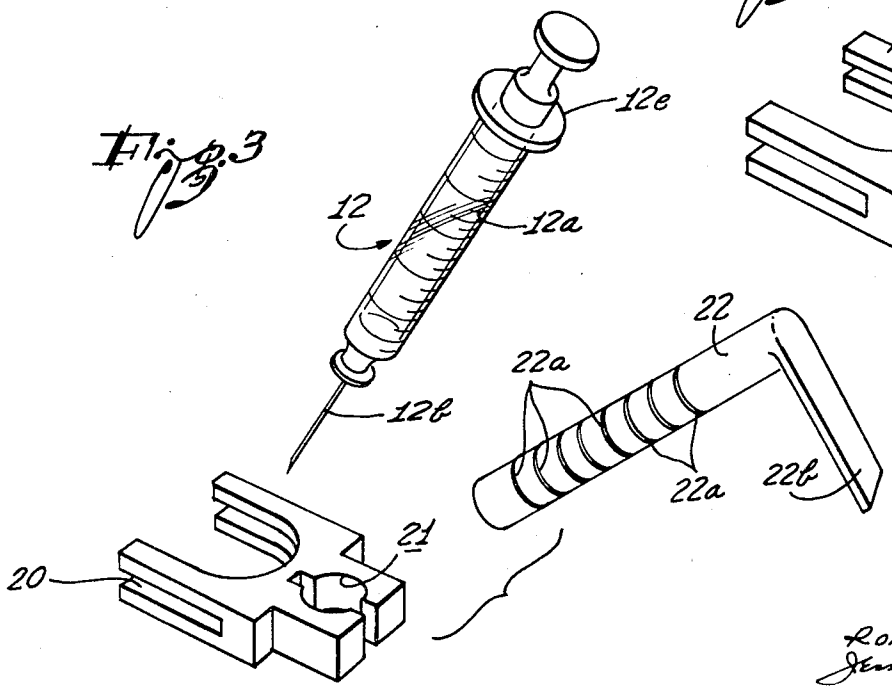


Fig. 3



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Fig. 4A

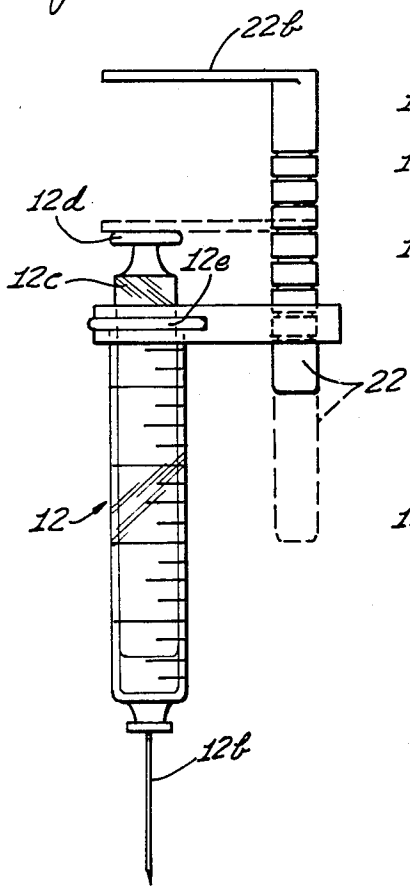


Fig. 4B

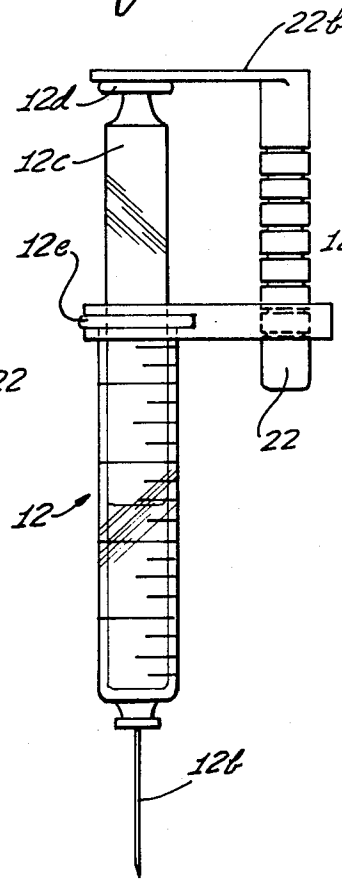
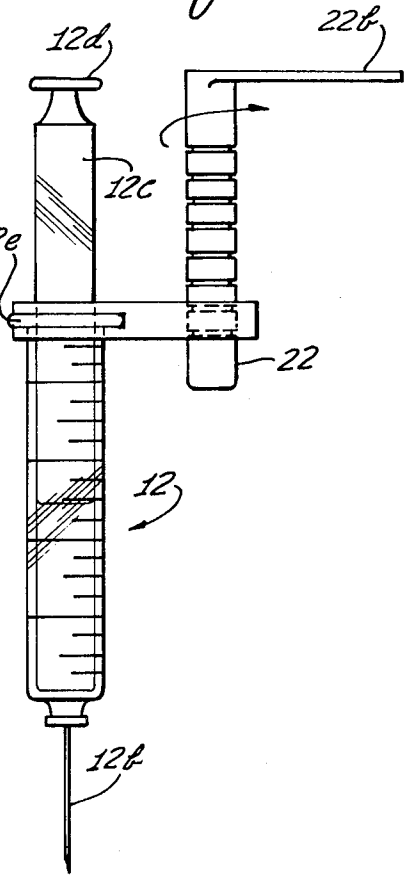


Fig. 4C



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SYRINGE GUIDE AND INDICATOR

BACKGROUND OF THE INVENTION

It is often difficult for both sighted and blind persons to use hypodermic syringes of the usual prior art type. Even nurses or other trained personnel find the administration of drugs by a hypodermic syringe to be a somewhat painstaking operation, since in each instance, they must be sure that the proper dose is drawn into the syringe, and this is usually ascertained by the careful reading of scales and calibrations on the wall of the barrel part of the syringe. The task of self-administration of drugs in correct dosages is almost impossible for blind persons, yet a large number of the blind suffer from ailments and diseases, such as diabetes, which require periodic hypodermic injections of insulin, and the like.

A primary object of the present invention is to provide an improved guide which may be used in conjunction with standard hypodermic syringes, and with the standard sealed bottles containing the liquids to be administered by such syringes. The guide of the invention serves to hold the hypodermic syringe and the bottle in a firm and properly aligned relationship so as to enable the hypodermic needle to be pierced through the sealed cap of the bottle, and inserted into the neck of the bottle the proper distance to assure that a full dosage is drawn into the syringe from the bottle, even though the contents may not actually be observed. The guide also may include an adjustable limit stop, as mentioned above, so that the amount of liquid drawn into the barrel of the syringe may be precisely predetermined. For example, this stop may be set initially at a particular setting, and then without any further reading, the correct dosage may be drawn into the barrel of the syringe each subsequent time the assembly is used.

Another object of the invention is to provide such an improved guide which is simple and inexpensive in its construction, and which is easy to use. The guide of the invention is light and does not add in any measurable way to the weight of the syringe and bottle. Moreover, the guide is constructed so that it in no way interferes with the ease of operation of the syringe. Also, both the bottle and the syringe may easily be removed from the guide after each use and disposed of, and the guide may be retained for subsequent use.

SUMMARY OF THE INVENTION

A guide for a hypodermic syringe is provided which may be attached to the neck of a standard drug bottle and which holds the bottle and a standard syringe in proper aligned relationship with one another. The guide serves to permit the hypodermic needle of the syringe to be easily inserted through the cap of the bottle and into the bottle by a proper amount so that a full dosage is assured. In addition, the guide may incorporate an adjustable stop which may be initially set, and thereafter predetermines the amount of liquid which is to be drawn into the barrel of the syringe for each subsequent use of the guide.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an exploded perspective representation of one embodiment of the guide of the invention, and of a hypodermic syringe and bottle which may be supported by the guide,

FIG. **2** is an elevational representation of the guide, syringe and bottle, including a side sectional view of the guide, showing the syringe and bottle in place, with the bottle being shown as partially broken away to illustrate more clearly the manner in which the syringe pierces the cap of the bottle and enters the neck thereof

FIG. **3** is a exploded perspective view of a second embodiment of the invention, and showing one of the components thereof removed from the central body portion; and FIG. **3A** is a perspective representation of a modified form of guide of the invention; and

FIGS. **4A**, **4B** and **4C** are side elevational views showing the various positions in the use of the embodiment of FIG. **3** in conjunction with a hypodermic syringe.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

The guide shown in FIG. **1** includes an elongated trough like body portion **10** which is adapted to receive a standard syringe **12** in coaxial relationship. The standard syringe **12** includes a barrel **12***a*and a hypodermic needle **12***b*, and it also includes a plunger **12***c*which extends into the barrel, and which may be moved axially with respect to the barrel by means of an actuating knob **12***d*. The barrel **12***a*also includes a peripheral flange **12***e*,all of the aforesaid components being standard parts of a usual present day hypodermic syringe.

The body portion **10** has an integral end portion **10***a*at the end to the right in FIG. **1**, and the end portion **10***a* defines a transverse channel which receives the flange **12***e*as best shown in FIG. **2**, so as to support the syringe **12** in the body portion **10**. The syringe is so supported in a readily removable manner, but against any longitudinal movement within the body portion due to the channel formed by the end portion **10***a*, and against radial movement by the configuration of the body portion **10** itself.

The troughlike body portion **10** has a second end portion at the opposite end thereof, and this second end portion **10***b* defines a diametrically enlarged cavity for receiving the head of a bottle **14**, and for holding the bottle firmly and securely in, for example, a press friction fit. However, as was the case with the syringe **12**, a bottle **14** may be readily removed from the guide, when so desired.

The bottle **14** may be of the type usually provided for containing drugs, and the like. It includes on its head a metal cap with a central opening, and a rubber diaphragm sealing the opening. The diaphragm is pierced by the hypodermic needle **12***b*, and the contents of the bottle may then be drawn into the barrel **12***a*of the hypodermic syringe **12**.

It will be appreciated that the guide described above provides a simple and expeditious means for supporting the bottle **14** and the syringe **12** in an aligned manner, so that the needle **12***d*may be inserted into the bottle **14**, merely by moving the plunger **12***c*down into the barrel **12***a*. Also, the bottle any syringe are held at predetermined spaced positions by the guide, so that the needle **12***d*extends the proper distance into the bottle **14**, and not too far, so as to assure a full dosage when the syringe is loaded.

The guide **10** described above may be formed by a simple molding operation of any appropriate plastic material, with the end portions **10***a*and **10***b*formed integral with the central trough like portion. The other guides to be described herein may also be formed of appropriate plastic.

For example, the guide **20** of FIG. **3** includes a U-shaped body portion having resilient characteristics, and which is transversely slotted to receive the flange **12***e*of the hypodermic syringe **12**, as shown in FIGS. **4A**, **4B** and **4C**. The guide **20** also includes a slotted bore **21** which receives a rod like stop member **22**. The rod like stop member **22** is slidable in the bore **21**. The stop member **22** may be moved axially in the bore **21**, and yet it is supported in a relatively close press fit by the body portion.

The rod like stop member may include a plurality of peripheral grooves **22***a*, for the convenience of blind persons, and these grooves contact a peripheral ridge of conventional form within the bore **21**. Then, as the stop member **22** is moved back and forth in the bore **21** to a preset position, the axial movement thereof may be determined by the "clicking" action between the ridge and the successive grooves **22***a*.

For the sighted person, the guide may take the form shown in FIG. **3A** in which it is designated **20***a*. The guide **20***a* is similar to the guide **20** except that the bore **21***a*is not slotted and a setscrew **23** is provided. For the latter guide, the stop member **22** is not grooved, and it may be locked in any position by the sighted person, merely by tightening the setscrew **23**.

The rod like stop member **22** has a radially extending and portion **22***b*at its free end. As shown, for example, in FIGS. **4A**, **4B** and **4C**, the stop member **22** may be withdrawn from

the body portion **20** to any desired setting (as set by the selected groove in FIG. **3** or as locked by the set screw **23** in FIG. 3A), and then turned so that its end portion **22***b*acts as a stop for the actuating knob **12***d*of the plunger **12***c*of the syringe **12**.

The first step in the procedure, as shown in FIG. **4**A, is to move the plunger down into the barrel **12***a*of the syringe **12**, so that the hypodermic needle **12***b* may pierce the cap and enter the neck of the associated bottle (not shown). Then, the plunger **12***c*is drawn back until the actuating knob **12***d*meets the end portion **22***b*of the stop member **22**, as shown in FIG. **4**B. At this point , the predetermined amount of liquid has been drawn into the barrel of the syringe **12**. The stop member **22** may then be turned so that its end portion **22***b*is out of the way, as shown in FIG. **4**C, and the syringe is then ready for the injection to be made.

It will be appreciated that once a desired setting is established for the stop member **22**, the assembly may be used over and over again, without the need for any further setting. In each instance, exactly the proper dosage is drawn into the barrel of the syringe **12** for the injection.

The invention provides, therefore, an improved, inexpensive and sturdy guide which has utility for supporting a hypodermic syringe and bottle in proper relationship, so that the hypodermic needle associated with the syringe may be easily and expeditiously inserted into the bottle. Moreover, the improved guide of the present invention may be constructed to incorporate an adjustable stop member, so that a predetermined dosage may be drawn into the syringe in a simple and convenient manner.

I claim:

1. A guide for use with a hypodermic syringes, said syringe having a barrel and a needle extending from one end of said barrel and a plunger with a displaceable actuating knob extending out the other end of said barrel, the barrel of said syringe having a peripheral flange formed at said other end, said guide serving to limit the displacement of said plunger from said barrel, and comprising: a resilient body member having a U-shaped portion configured to extend around the syringe, said U-shaped portion having means providing a transverse slot to receive the aforesaid flange of said barrel rigidly yet releasably to hold said syringe, said body member having another portion having means providing a bore extending in parallel spaced relationship with the longitudinal axis of the syringe; an elongated rod like adjustable stop member slidably received in said bore means and extending beyond the other end of the barrel in spaced parallel relationship with the axis of said syringe , said stop member having a transversely extending end portion positioned to extend across the path of said actuating knob so as to engage said actuating knob at a selected displacement from said plunger out from said barrel thereby to limit the displacement of said plunger out from said barrel, and being rotatable in said bore means to turn said end portion away from said actuating knob to permit free actuation thereof.

2. The guide defined in claim **1** in which said stop member includes a series of peripheral grooves extending therealong at spaced positions , and adapted to engage a peripheral rim in the bore of said body portion in a resilient manner so as to permit the stop member to be set in steps to a selected longitudinal position.

3. The guide defined in claim **1** and which includes a set screw extending through said body portion and into said bore adjustably to lock said stop member at any selected setting.