

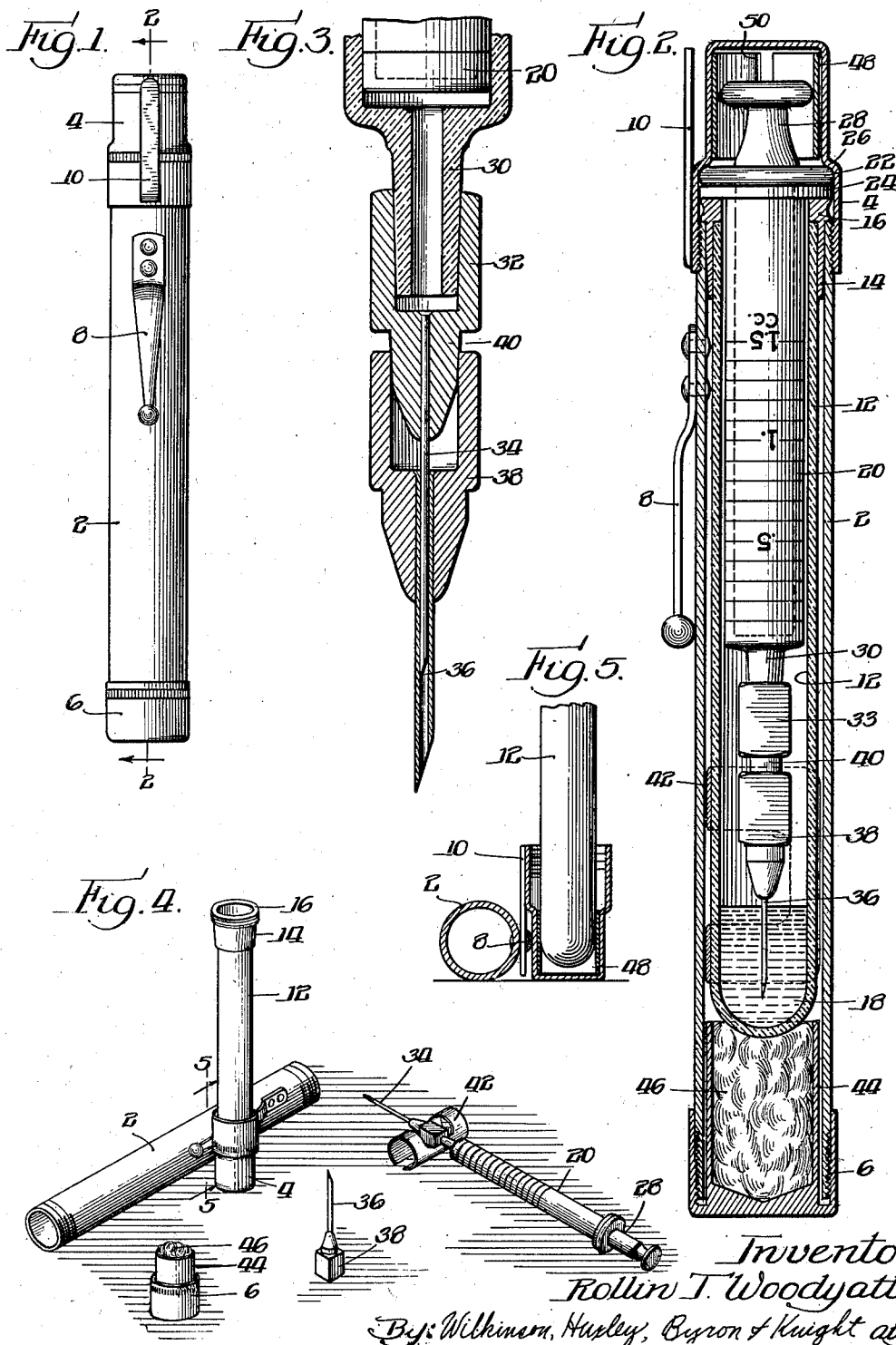
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R. T. WOODYATT

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INJECTION INSTRUMENT

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## INJECTION INSTRUMENT

Rollin T. Woodyatt, Chicago, Ill.

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This invention relates to injection instruments, and has been illustrated as including a hypodermic syringe and carrying case, together with various accessories so that the assembly will include everything necessary for the convenient and safe use of the instrument.

There are numerous people who frequently need to make injections of some medicinal fluid, such as insulin. For these people especially it is desirable that the necessary instrument and accessories be assembled in as compact and portable a form as possible, and that keeping the hypodermic syringe absolutely sterile as well as insuring its safe use be made as convenient as possible. The present invention has satisfied the need by providing an injection syringe in combination with an alcohol-containing holder, a needle rack and a cotton container, all compactly assembled in a tube not much larger than a large fountain pen, which may be used for carrying the syringe in the pocket or which may be used as a rack for holding the alcohol container upright during use of the syringe.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation, as will be more fully described and particularly pointed out in the specification, drawing and claims appended hereto.

In the drawing, which illustrates an embodiment of the device, and wherein like reference characters are used to designate like parts,

Figure 1 illustrates the instrument in its assembled condition;

Figure 2 is a vertical cross-sectional view taken on line 2—2 of Figure 1;

Figure 3 is a greatly enlarged fragmentary sectional view showing the assembly of the needles onto the syringe;

Figure 4 is a view of the instrument with its parts separated as they would be during use; and

Figure 5 is a fragmentary vertical sectional view taken approximately through the line 5—5 of Figure 4.

Although my invention may take many forms, only one has been chosen for illustration. In this form, the outer case includes the tube 2, the cap 4, and the bottom 6. These parts may be made of any desired material, such as metal, though for the sake of appearance it is preferred that the tube 2 at least be coated with a more attractive substance, such as a decorative cellulose composition. The tube 2 may be provided with a pocket clip 8 and the cap 4 may be provided with a clip 10, the purpose of which is described be-

low. Within the tube 2 is a container 12 similar to a test tube. This container may be hermetically sealed to a top 14 which is provided with a metal flange 16 adapted to rest on the edge of the tube 2. The clip 10 and its top 14 should be sealed together as by a cement which is not soluble in alcohol. In the bottom of the tube 12 may be provided a suitable quantity of alcohol 18 or any sterilizing fluid for filling any bacteria which may get on the needles, and to furnish a supply for cleaning the skin at the spot where the injection is to be made. The syringe barrel 20, together with the parts associated therewith, is held in the container 12 by a rim 22. Between the rim 22 and the flange 16 there may be a rubber washer 24. The cap 4 is shaped with a shoulder 26 which squeezes the rim 22 against the rubber washer, which therefore makes a tight seal between the rim 22 and the flange 16.

As the usual custom, the barrel 20 of the syringe is provided with suitable calibrations to indicate the quantity of material held therein. There is also provided a customary plunger 28 having a snug ground fit with the syringe barrel. The plunger 28, the barrel 20, and the container 12 are preferably all made of glass, that known commercially as "Pyrex" being preferred. The barrel 20 is also provided with a tip 30 which is slightly tapered toward its lower end, and onto which is fitted a hub 32 of the hypodermic needle 34, which may be tapered with approximately the same taper as that of the tip 30, so as to make an air-tight seal therewith. This joint is of the usual form. The hypodermic needle 34 is nested into a filling needle 36, the hub 38 of which fits over an extension 40 on needle 34 as the hub 32 fits over the tip 30. By using the filling needle 36 for piercing the rubber cap of the insulin container, the hypodermic needle 34 may be kept sharper than would otherwise be possible.

Slipped over the end of the glass container 12 is a thin sheet metal rack 42, the construction and use of which are clearly shown in Figure 4.

Upstanding from the bottom 6 is a short tube 44 into which is pressed a supply of absorbent cotton 46.

The use of the instrument will now be briefly described: First, the cap 4 is unscrewed, and its clip 10 is fitted under the clip 8 of the tube 2, as shown in Figures 4 and 5. Next the bottom 6 is unscrewed and set in a convenient position, as shown in Figure 4. Then the container 12 and with it the hypodermic syringe is removed from the tube 2, and this tube is thereafter placed in a convenient position with the cap positioned

open end up. The rack 42 is then removed from the container 12 and also placed in a convenient position, the container 12 being placed in the cap 4 to retain the container in a vertical position so that the alcohol will not be lost. It is preferred that the cap be provided with a split ring 48 or other spring steadying means, and if the split ring is used it may be bent fairly decidedly near one end, as at 50, so as to press both against the cap and against the container 12. The syringe with its needles is then removed from the container 12. The outer needle 36 is pressed through the rubber cap of the container of insulin or other medicinal substance, and insulin is drawn into the casing in the usual way by a partial withdrawal of the plunger 28. The filling needle 36 is then removed and rested on its hub, as shown in Figure 4. The syringe may then be rested on the rack 42, as is also illustrated in Figure 4, while the spot of skin at which the injection is to be made may be cleaned off. For this purpose cotton may be removed from the bottom 6 and moistened with alcohol from the container 12, and then used on the spot where the injection is to be made. The syringe is then removed from the rack and the injection made in the usual way.

The steps of taking apart just described are then reversed and the instrument intact is clipped to the pocket by the clip 8, ready for its next use. It is extremely complete and compact, provides for absolute sterility, and may be carried in the pocket or safely shipped.

It is to be understood that many other embodiments of the invention, including some in improved form, will be apparent, and in the course of time more will be devised by those skilled in the art. It is not desired that this invention be limited to the details described, for its scope includes all such forms or improvements as come within the spirit of the following claims, construed as broadly as the prior art will permit.

What is claimed is:

1. As an article of manufacture, an injection instrument including: a hypodermic syringe having thereon a hypodermic needle, a container adapted to contain a sterilizing fluid, and means for sealing the syringe in said container; said means comprising flanges on said syringe and said container, a protecting tube adapted to fit around said container, and a cap adapted to screw onto the said tube, said cap and said tube being of a size to squeeze said flanges together as the cap is screwed onto the tube.

2. As an article of manufacture, an injection instrument including: a hypodermic syringe having thereon a hypodermic needle, a container for holding a sterilizing fluid in contact with said needle, a tube for protecting and conveniently carrying said container and syringe, a cap removably attached to said tube for holding said syringe and container therein; said tube and cap being provided with interengaging members for making a stand with the cap open end up, said cap being then adapted to hold said container in a vertical position.

3. As an article of manufacture an injection instrument including: a hypodermic syringe having thereon a hypodermic needle, a container for holding a sterilizing fluid in contact with said needle, a tube for protecting and conveniently carrying said container and syringe, a cap cooperating with one end of the tube for causing the syringe to seal the container and a removable closure for the other end of said tube located

outside of said container, said closure being adapted to carry a supply of cotton therein.

4. As an article of manufacture, an injection instrument including: a hypodermic syringe having thereon a hypodermic needle, a container for a sterilizing fluid enclosing said syringe and said needle, a rack for the syringe removably mounted on said container, a protecting tube surrounding said container, a cap for said tube adapted also to engage said tube and form a rack for holding said container upright, and a second closure for said tube adapted to contain a supply of cotton.

5. As an article of manufacture, an injection instrument including: a hypodermic syringe having thereon a hypodermic needle, a container adapted to contain a sterilizing fluid, and means for sealing the syringe in said container; said means comprising flanges on said syringe and said container, a protecting tube adapted to fit around said container, a cap adapted to screw onto the said tube, said cap and said tube being of a size to squeeze said flanges together as the cap is screwed onto the tube, and a leak-preventing washer located between said flanges.

6. As an article of manufacture, an injection instrument including: a hypodermic syringe having thereon a hypodermic needle, and means for maintaining said syringe and needle in condition for use which comprises: a guard needle nested over said hypodermic needle and extending therebeyond in its fully nested position, a container for holding a sterilizing fluid in contact with said needles, and a tube for protecting and conveniently carrying said container and syringe.

7. As an article of manufacture, an injection instrument including: a hypodermic syringe having thereon a hypodermic needle, and means for maintaining said syringe and needle in condition for use which comprises: a guard needle nested over said hypodermic needle and extending therebeyond even in its fully nested position, a container for holding a sterilizing fluid in contact with said needles, a tube for protecting and conveniently carrying said container and syringe, and a rack comprising essentially a split cylinder of spring steel fitting snugly around said container within said tube and adapted when removed therefrom to support the hypodermic syringe and needle at a point below the base of the needle to suspend the point safely out of contact with a table or other support for said rack.

8. A syringe carrying assembly including: a container of tubular shape, a tubular casing for said container, and a rack comprising a split cylinder of spring steel fitted snugly and removably on said container and within said case and adapted when removed therefrom to support the hypodermic syringe and needle at a point below the base of the needle to suspend the point safely out of contact with a table or other support for said rack.

9. An injection instrument including a hypodermic syringe fitted with two pointed hypodermic needles, one removably telescoped over the other, the shaft and point of the outer needle, even when telescoped to the limit of its movement, projecting beyond the point of the inner needle to form a protecting sheath around the inner needle and to prevent blunting of the point of the inner needle while piercing the rubber cap of a medicinal vial and carrying the inner needle therethrough; the annular space between the needles having substantially air tight closure at

some point to prevent leakage during the filling of said syringe through said needles.

10. As an article of manufacture, an injection instrument including: a complete hypodermic syringe, a container adapted to contain a sterilizing fluid, and means for sealing the container with said syringe; said means comprising flanges on said syringe and said container, a protecting tube fitting around said container and bearing against the flange thereof, a cap screwed onto the said tube and bearing against the flange of said syringe, said cap and said tube being of a size to squeeze said flanges together as the cap is screwed onto the tube, and a leak-preventing washer located between said flanges.

11. As an article of manufacture, an injection instrument including: a hypodermic syringe having thereon a hypodermic needle, a container for holding a sterilizing fluid in contact with said needle, a tube for protecting and conveniently carrying said container and syringe, a cap cooperating with one end of the tube for causing the syringe to seal the container, and a removable closure for the other end of said tube located outside of said container, said closure being adapted to carry therein an additional item for use in the injection procedure.

12. A pocket size syringe-carrying case comprising: a tubular member and a cap therefor adapted to hold the syringe in said tubular member by engaging the end of said tubular member, said cap and said tubular member each having a

clip extending lengthwise thereof and constructed to engage one another at right angles whereby when said cap rests on a flat surface in an open end up position said tubular member while attached thereto may rest on said surface in a horizontal position to form with said cap a stand for holding a vial in a vertical position when set into said cap.

13. A pocket-size syringe carrying case comprising a tubular member and a cap for said tubular member having threaded connection therewith to close an open end thereof and to hold the syringe within the member, said cap also having detachable connection with the tube to form a self-sustaining stand with said cap in an open end up position, in which position said cap is adapted to hold a vial in a vertical position.

14. A pocket-size syringe carrying case comprising a tubular member and a cap for said tubular member having threaded connection therewith to close an open end thereof and to hold the syringe within the member, said cap also having detachable connection with the tube to form a self-sustaining stand with said cap in an open end up position, in which position said cap is adapted to hold a vial in a vertical position, the stand forming engagement between said tube and cap being accomplished by means of a clip on said tube engaging a normally upwardly extending prong on said cap.

ROLLIN T. WOODYATT.