

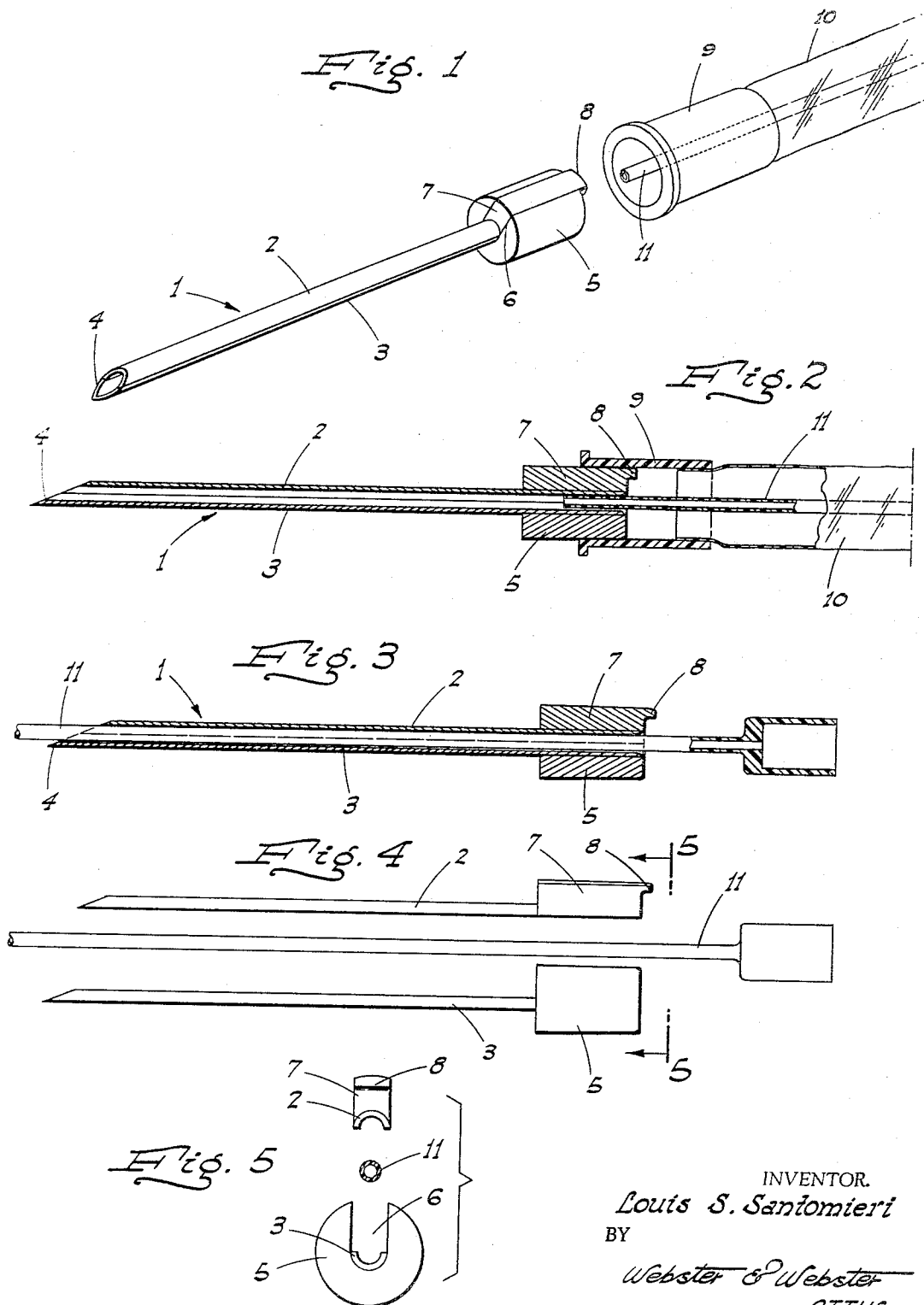
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HYPODERMIC NEEDLE FOR A CANNULA PLACEMENT UNIT

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This invention relates to hypodermic needles of the type which are employed in intravenous cannula placement units.

In this type of unit, the purpose is to enable a flexible plastic catheter tube or cannula to be inserted a desired distance into a vein after the initial puncture in the vein has been made by the needle. This arrangement has been found to give a greater range of movement, permits longer periods of installation, affords greater comfort to the patient, and with less risk of extravasation of the fluids being given, than is the case with the use of a needle alone.

All known previous units—while permitting of the ready insertion of a plastic cannula in a vein—thereafter retain the needle on an exterior portion of the cannula, which poses a hazard to the patient. If the sharp needle point is not safeguarded against damaging the cannula, it may possibly puncture the same or shear off a portion thereof with any relatively slight movement of the patient; this being an eventuality which could embolize or cause leakage of the intravenous fluids. Various devices are used to prevent such undesired occurrences, such as retracting the needle from the vein and then taping said needle in place on the arm or other member of the patient, or shielding the needle in one way or another, or undertaking other none too satisfactory expedients, frequently to the discomfort of the patient.

It is, therefore, the major object of the present invention to provide a hypodermic needle—of the type and for the purpose described—so constructed that it may be quickly and easily removed from association with the cannula as soon as the needle is withdrawn from the vein.

Specifically, the needle comprises a pair of longitudinal tubular halves or sections matching each other and adapted together to surround the cannula in relatively slidable relation thereto; a further important object of the invention being to provide novel means to disengageably hold the needle sections in the necessary cooperative relation surrounding the cannula for insertion thereof in a vein by said bivalve needle, but enabling the sections to be later disengaged from each other and removed from said cannula without disturbing the latter.

A further object of the invention is to provide a hypodermic needle for a cannula placement unit which is designed for ease and economy of manufacture.

A still further object of the invention is to provide a practical, reliable, and durable hypodermic needle for a cannula placement unit and one which is exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

FIG. 1 is a perspective view of the improved hypodermic needle, with the cannula and the retaining sleeve shown separated therefrom.

FIG. 2 is a sectional elevation of the needle as engaged by the retaining sleeve and with the cannula projected part way into said needle.

FIG. 3 is a similar view of the needle, but with the retaining sleeve removed and the cannula projected through the needle.

FIG. 4 is a side elevation of the needle, with the parts

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thereof separated and shown with the cannula disposed therebetween.

FIG. 5 is a cross section taken on line 5—5 of FIG. 4.

Referring now more particularly to the drawings and to the characters of reference marked thereon, the needle, indicated generally at 1, is tubular and comprises two substantially identical sections 2 and 3, separated along the diametral plane of the needle, but normally engaging each other in matching edge to edge relation in such plane.

At its outer or forward end, the needle is formed with a sharp pointed bevel tip 4, which is cut across both sections 2 and 3.

At its inner or rear end, the needle 1 is mounted in a cylindrical supporting base 5 of materially greater diameter than the needle and concentric therewith.

More particularly, the lower section 3 of the needle is rigid with and secured to the base 5 which—upwardly from said lower section and for the full width thereof and for the length of said base—is formed with a parallel sided upwardly opening slot 6 as shown in FIG. 5.

The upper section 2 of the needle is rigid with and secured in a plug 7 of the same length and width as the slot 6 and having a snug but removable fit therein. When the plug 7 is firmly fitted in place in the slot 6 the needle sections 2 and 3 are disposed in matching edge to edge engagement with each other throughout their length; said edges, if desired, being suitably adhesively but separably bonded together.

At its rear end the plug 7 is provided with a lip 8 projecting beyond the base and which lip is adapted on its underside for finger engagement; the upper face of the plug 7 and lip 8, when the plug is in place in the base 5, forming a continuation of the circular contour of said base as shown in FIG. 1.

A retaining sleeve 9 of plastic or other suitable material initially engages in removable but snug fitting relation over the base 5 from the rear end thereof; such sleeve embracing, of course, the plug 7 to prevent accidental dislodgment thereof from the base.

At its rear end the sleeve 9 is attached to a sanitary, tubular and flexible enclosure 10 for the cannula 11 which is adapted to be projected through the needle and into the vein penetrated by said needle.

In operation, after the needle 1 has been advanced to puncture and enter the vein, the cannula 11 is fed through the needle and projected the desired distance into the vein; the needle then being withdrawn from the vein and slid rearwardly on the cannula 11 and into the clear.

Thereafter, the needle may be easily and quickly disengaged from the cannula in the following manner:

The sleeve 9 is first backed off the base, and the plug 7 is then pried upwardly by means of a thumb nail or the like inserted under the lip 8. As the plug is rigid with the upper section 2 of the needle, said section will be disengaged from the lower section 3 by such prying up movement of the plug; the tip end of the section 2 then bearing on the corresponding end of the lower section 3 as a fulcrum. As soon as the plug 7 clears the slot 6, the two needle sections will separate and move clear of each other—and of the cannula—and may then be set aside. During the above operation, the cannula withdraws from slot 6, remains undisturbed, and thereafter is used in the normal manner.

From the foregoing description, it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as

do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful and upon which Letters Patent is desired:

1. In an intravenous cannula placement unit, a tubular vein-puncturing needle adapted to receive a cannula therethrough in slidable relation, the needle comprising separate longitudinal half sections together having a puncturing tip at one end, and means at the other end of the needle sections detachably connecting said needle sections together; said means including a relatively large base member at the other end of the needle, one needle section being rigidly secured in said base member, the latter having a longitudinal slot extending away from the open face of said one needle section to the adjacent side of the member and at least as wide as said section, a plug in which the adjacent end of the other needle section is rigidly secured, said plug removably engaging in and filling the slot, and means normally preventing removal of the plug from the slot.

2. In an intravenous cannula placement unit, a tubular vein-puncturing needle adapted to receive a cannula therethrough in slidable relation, the needle comprising separate longitudinal half sections together having a puncturing tip at one end, a relatively large base member at the other end of the needle, one needle section being rigidly secured in said base member, the latter having a longitudinal slot extending away from the open face of said one needle section to the adjacent side of the member and at least as wide as said section, a plug in which the adjacent end of the other needle section is rigidly secured, said plug removably engaging in and filling the

slot, and means normally preventing removal of the plug from the slot comprising a sleeve removably engaging over the base and plug and preventing movement of the plug in a direction radially of the needle sections.

3. In an intravenous cannula placement unit, a tubular vein-puncturing needle adapted to receive a cannula therethrough in slidable relation, the needle comprising separate longitudinal half sections together having a puncturing tip at one end, a relatively large base member at the other end of the needle, one needle section being rigidly secured in said base member, the latter having a longitudinal slot extending away from the open face of said one needle section to the adjacent side of the member and at least as wide as said section, a plug in which the adjacent end of the other needle section is rigidly secured, said plug removably engaging in and filling the slot, means normally preventing removal of the plug from the slot, and a lip for finger engagement projecting from the rear end of the plug.

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