

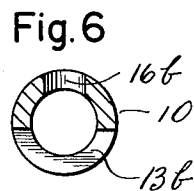
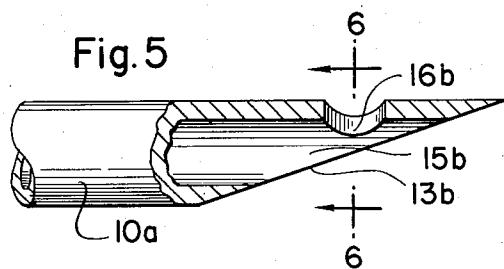
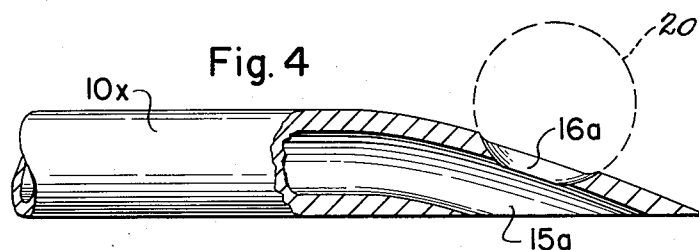
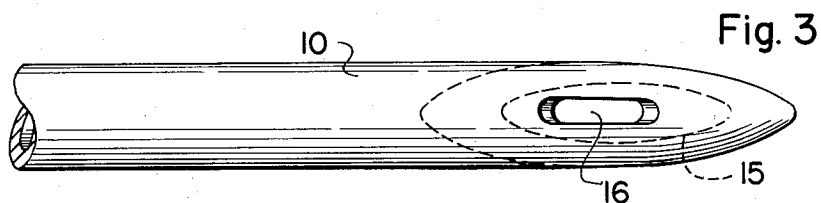
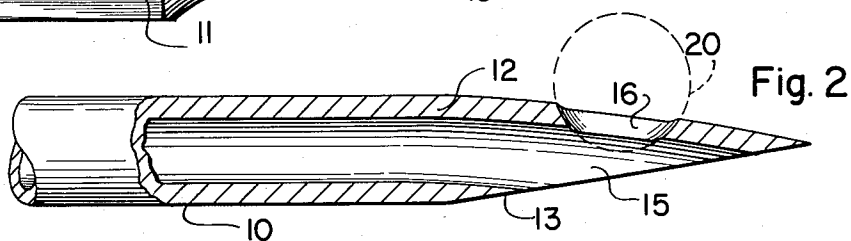
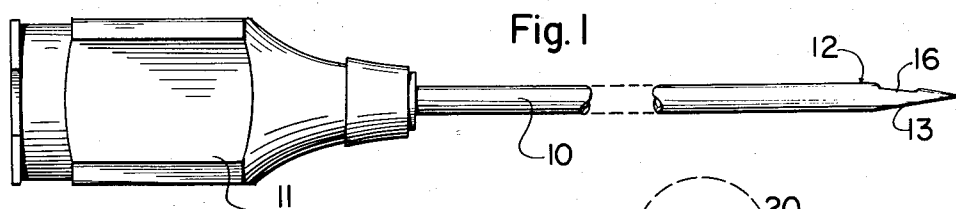
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R. L. HUBER

2,748,769

HYPODERMIC NEEDLE

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2,748,769

HYPODERMIC NEEDLE

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Application February 24, 1953, Serial No. 338,197

3 Claims. (Cl. 128—221)

This invention relates to hypodermic needles and has reference more particularly to improvements in needles of those kinds described and illustrated in my United States Patents No. 2,409,979 of October 22, 1946, and No. 2,717,599 of September 13, 1955, which have the cannula curved laterally to more or less degree at the point forming end. It is not the intent, however, that the improvement be confined to needles of those specific kinds of the patent and application since it likewise is applicable to the conventional type of hypodermic needle with beveled end and straight cannula.

It is the primary object of this invention to provide an improvement whereby any difficulty in the use of a hypodermic needle that may arise by reason of an improper or disadvantageous placement of the needle point in a vein in a hypodermic or intravenous procedure is avoided. That is, to provide a needle improvement that will overcome or eliminate the undesirable effects of any closing or partial restricting of the outlet of the channel of the cannula by reason of its being occluded or partially closed by the vein wall incident to an improper or disadvantageous positioning or placement of the needle in the patient.

For a better understanding of the present invention, it will here be explained that in the use of any hypodermic needle, it is desirable to so project the needle point into the vein of the patient that the needle channel opening will not be detrimentally covered or closed by the vein wall through which it is projected.

The conventional type of straight needle, with beveled end and straight channel opening through the beveled surface, is most effectively used when projected into the vein with the beveled surface through which the channel opens, faced upwardly as the needle is inserted into the vein wall through which the needle is projected at an inclined angle, so that the outlet will not be apt to be detrimentally occluded or closed by the vein wall during aspiration or blood taking. The needle of my above mentioned patent, with lateral opening, is most effectively used when the open side is faced away from the wall of the vein through which the needle is angularly projected. However, because of the particular shape of the needle point and mode of bending the cannula in the formation of the point, the user, especially if more accustomed to the conventional type of needle, may become confused and place the needle incorrectly or in that less advantageous position. This results in partially obstructing or occluding the outlet. Therefore, the present improvement is designed to overcome the effects of any undesirable occlusion or coverage of the normal or main outlet of the needle in the event this mistake in positioning of the needle takes place.

More specifically stated, the present invention resides in the provision of a supplemental or auxiliary port or outlet in that part of the needle wall that is opposite the channel outlet and in so locating and forming or shaping this port that it in no way interferes with the inserting and normal and most satisfactory use of the needle.

In accomplishing the above mentioned and other objects of the invention, I have provided the improved de-

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tails of construction, the preferred forms of which are illustrated in the accompany drawings, wherein:

Fig. 1 is a substantially enlarged side view of a hypodermic needle, embodying the improvements of the present invention therein; a portion of the needle being broken away to reduce the length of the view;

Fig. 2 is an enlarged, longitudinal sectional view of the point forming portion of the needle of Fig. 1, showing the auxiliary port as provided in the wall that is opposite the main outlet of the cannula channel;

Fig. 3 is a top view of the needle point illustration of Fig. 2, showing the auxiliary port;

Fig. 4 is an enlarged side view and partial section of the end portion of a needle that is made substantially in accordance with my U. S. patent, previously mentioned, and embodying the present improvement therein;

Fig. 5 is a sectional view of the end portion of a hypodermic need of conventional form to which the present auxiliary port improvement has been applied; and

Fig. 6 is a cross-section taken on line 6—6 in Fig. 5.

Referring more in detail to the drawings:

In Figs. 1 and 2, the present invention is shown to be embodied in a hypodermic needle of the kind shown and described in my co-pending application filed on February 18, 1952, under Serial No. 272,025, now Patent No. 2,717,599 of September 13, 1955. The needle cannula 10 is equipped at one end with a hub 11 whereby it is adapted to be functionally mounted on a syringe or a tubing. The opposite end of the cannula is pointed for easy piercing of the flesh and in this particular needle the cannula is formed near its end with an angular bend, beginning at point 12 in Fig. 2. This laterally bent portion terminates in a beveled end surface 13 starting at a point substantially even with the starting point 12 of the bend, but at the opposite side of the cannula, and inclined opposite the direction of the angular bend and at an angle substantially equal thereto. Thus, as in Fig. 4, this beveled surface lies in a plane parallel to and tangential of the side of the needle towards which the end portion is bent. The beveled surface 13 thus contains the outlet 15 of the cannula channel therein and the extreme point of the needle is substantially in the extended axial line of the body portion of the cannula and the main channel outlet 15 faces toward a side of the needle as distinguished forwardly in opening from its end.

In accordance with the present invention, the needle wall opposite the outlet 15 is formed with a port or passage 16, here shown to be of oval form and to extend in the longitudinal direction of the needle. However, this port might be round or rectangular without departing from the spirit of the invention.

The port 16 is so formed and rounded—as in Figs. 1 to 4—that its bounding edges will not cut, tear or catch tissues or flesh when the needle point is projected into the patient and it can be quite satisfactorily formed in this way by punching out the segment or by pressing a revolving disk cutter against the outer face of the wall. It has been indicated in Fig. 2 that the port 16 has been formed in this manner by a cutter represented in dotted lines, at 20, in Fig. 2.

In Fig. 4, I have illustrated the present improvement as applied to a needle of that kind covered by my previously mentioned U. S. patent. The needle cannula 10x is laterally bent and then cut off in a plane that extends along the side of the cannula toward which the bend is made. The cannula channel opens directly through that plane to the side of the point-forming portion of the needle. Formed in the wall of the cannula, opposite the lateral outlet 15a, is a port or passage 16a. This may be provided in the same manner as that in which the port 16 of the needle of Fig. 2 was formed, and it may be round, oblong or of any other suitable shape.

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Fig. 5 shows the conventional form of needle as equipped with an auxiliary port 16b. In this needle, the cannula 10a is straight, and terminates in a beveled end surface 13b. The port 16b is formed in the cannula wall opposite the cannula outlet 15b.

It will be understood, by reference particularly to Figs. 2, 4 and 5, that regardless of the needle being so positioned in use that the beveled end surface and normal outlet therethrough be covered or restricted by the wall of the vein through which it is projected, or by tissues pressing thereagainst, the function of the needle will not be impaired since the auxiliary port will then permit ready and easy flow to or from the channel of the cannula as may be required. The auxiliary port 16 or slot thus is advantageous both in the withdrawing of blood and in the making of injections if the normal outlet from the needle channel is restricted, and if the normal outlet is not restricted, the port has no detrimental effect in the use of the needle.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is

1. A hypodermic needle comprising a channelled cannula, with its end portion bent laterally and formed with an end surface that is beveled relative to the axial line of

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the laterally bent portion and providing the needle with a piercing point and a laterally facing outlet from the cannula channel, there being an auxiliary outlet from the channel formed through the cannula wall that is opposite the channel outlet and said auxiliary outlet being disposed in transverse alignment with the channel outlet.

2. A needle as in claim 1 wherein the beveled end surface of the laterally bent portion of the cannula is directed opposite to the direction of the lateral curve of the cannula, and at an angle that is substantially equal to the angle of bending the cannula.

3. A needle as in claim 1 wherein the beveled end surface of the cannula lies in a plane parallel to and tangential of the side of the needle toward which the end portion is bent.

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