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SUPPORTING MEANS FOR NEEDLES FOR INTRAVENOUS INJECTIONS

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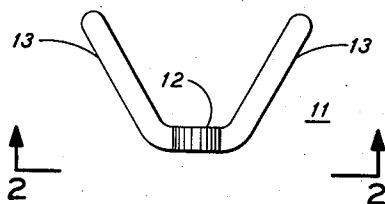


FIG. 1

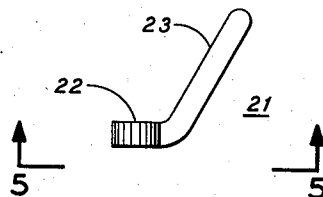


FIG. 4

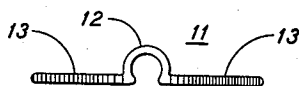


FIG. 2

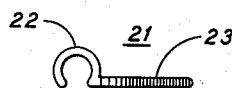


FIG. 5

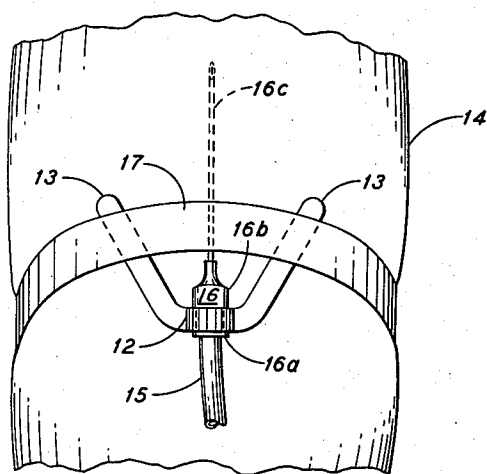


FIG. 3

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SUPPORTING MEANS FOR NEEDLES FOR INTRAVENOUS INJECTIONS

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2 Claims. (Cl. 128—214)

This invention relates in general to equipment for intravenous injections and relates more particularly to supporting means for the needles utilized in such injections.

The use of intravenous injections of different fluids is quite common today, for both intravenous feedings and transfusion of blood. In such injections, the fluid to be injected is fed from a bottle or other container through a length of flexible tubing to a hypodermic needle communicating with the veing into which the fluid is to be injected, usually in the patient's arm. Since the injection may extend over a considerable period of time, it is desirable that the needle and tubing be quite securely and stably attached to the injection area so as to permit some freedom of movement of the patient's arm without interference with the injection. Heretofore, the needle has been secured to the injection area by lengths or strips of adhesive tape passing over the needle and secured to the skin area adjacent thereto. However, this method has the disadvantages that, owing to the relatively small cross-sectional area of the needles, the adhesive has a minimum of contact with the needle, and the needle is accordingly not securely held in one position. Consequently, movement of the patient's arm often causes the needle to puncture the veing again, with a resultant leakage of fluid and blood and the attendant hazard and discomfort to the patient.

The disadvantages may be overcome in accordance with the present invention by utilizing a supporting member which is attached to the needle and which has a base section extending from the needle to provide supporting means in contact with the skin area adjacent the injection site. More particularly, the present invention contemplates a supporting member for a needle used in intravenous injections having a clamping section which clampably surrounds at least a portion of the needle and a base section extending from the clamping section to rest on the skin area adjacent the injection site and provide a relatively large surface to which an adhesive member may be affixed. In one form of the present invention, the supporting member comprises a clamping section of generally U-shaped configuration, with the U-shaped portion inverted and clamped or clipped on the hub of the injection needle. The base section comprises a pair of leg members extending laterally on either side of the needle and preferably disposed at an acute angle to the longitudinal axis of the needle. These leg members rest on the skin surface adjacent the injection site and have a sufficiently large surface in contact with the skin to insure that when adhesive is placed over the leg members and adjacent skin, the supporting member and the needle will be securely and stably affixed to the injection area.

The supporting member is preferably of unitary construction as an aid in manufacture, and may be made of any suitable material such as plastic, rubber, or metal. The material preferably has sufficient resilience so that the clamping section may be made slightly smaller than

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the portion of the needle to which it is to be clamped and may be enlarged and slipped over the needle to provide for quick attachment and yet insure firm contact with the supporting member and the needle.

5 In an additional form of the invention, the needle and supporting member are fabricated as a unitary structure, with a base section extending from the needle hub or other suitable portion to form supporting means adapted to rest on the skin adjacent the injection area.

10 Additional features of the invention will be apparent from the following description when read in connection with the accompanying drawing, in which,

Fig. 1 is a top view of one embodiment of the present invention;

15 Fig. 2 is an end view of the device illustrated in Fig. 1; Fig. 3 illustrates the operation of the device of Figs. 1 and 2 in supporting a needle in an intravenous injection;

Fig. 4 is a top view of an alternate embodiment of the present invention; and

20 Fig. 5 is an end view of the device illustrated in Fig. 4.

Referring to Figs. 1 and 2 by character of reference, number 11 designates generally one embodiment of the supporting member of this invention. Member 11 comprises a central clamping section 12 having a generally U-shaped cross-section for clamping to a portion of an injection needle. As shown in Fig. 2, the legs of the U in section 12 preferably converge slightly at their ends so that when the supporting member is slipped over the needle, the clamping section firmly engages the needle. Member 11 further comprises a base section consisting of a pair of leg members 13 extending from clamping section 12 and adapted to rest on the skin adjacent the injection site. As shown in Fig. 1, leg members 13 are preferably disposed at a fairly acute angle to the longitudinal axis of the needle.

Fig. 3 illustrates the disposition and operation of the embodiment illustrated in Figs. 1 and 2 in an intravenous injection in a point of the body designated by reference number 14. The fluid to be injected is fed from a suitable container (not shown) through a length of flexible tubing 15 to an injection needle 16 which penetrates the skin and is in communication with the vessel into which the fluid is to be injected. Needle 16 is of the type provided with a hub portion 16a of generally square or rectangular cross section over which the clamping section 12 of member 11 is adapted to fit. Needle 16 also has a shank portion 16b having a passageway therethrough communicating with the chamber in hub 16a and the hollow needle portion 16c. In the particular embodiment illustrated in Fig. 3, tubing 15 fits into an opening in hub portion 16a.

Supporting member 11 is attached to needle 16, with clamping section 12 firmly engaging the hub portion 16a, and leg members 13 rest on the skin adjacent the injection site. One or more strips of adhesive 17 are then passed over leg members 13 and needle portion 16c and secured to the patient's skin. Since leg members 13 present a relatively large surface for engagement with adhesive 17 and since needle 16 is firmly secured to supporting member 11, needle 16 is very stably secured to the injection area, thus permitting the patient some freedom of movement without interference with the injection.

The size of supporting member 11 relative to the size of the needle may vary within relatively wide limits in accordance with this invention, the important feature being that sufficient surface area is available on leg members 13 to insure that the needle may be securely fixed to the injection area. Similarly, although the illustrated embodiments disclose the attachment of the clamping section to the needle at the hub thereof, it will be readily apparent that such attachment may be made at any other

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suitable portion of the needle or at the hubs of needles of different shapes by suitable design of the configuration of the clamping section, the important feature being that the clamping section firmly engage the needle to provide the required stability.

Similarly the angle at which leg members 13 extend from clamping section 12 may vary within wide limits. In the embodiment illustrated in Figs. 1, 2 and 3, leg members 13 are disposed at a fairly acute angle with respect to the longitudinal axis of needle 16, and I believe that this is the preferred disposition of these elements, since it affords a great deal of longitudinal and transverse stability to the assembly and permits the adhesive to be wrapped around the patient's limb and be secured to both the needle and leg members 13. However, it will be understood that the leg members may be disposed in any other suitable manner, such as at right angles to or at an obtuse angle to the longitudinal axis of the needle.

Figs. 4 and 5 illustrate an alternate embodiment of the present invention, involving a supporting member 21 having only one leg member in the base section. Member 21 is provided with a clamping section or portion 22 which, as before, is provided with a generally U-shaped cross-section, with the legs thereof converging to firmly grip the needle hub or shank. A single leg member 23 extends from clamping section 22 and is adapted to rest on the skin adjacent the injection site to provide a relatively large surface to which adhesive may be affixed to stabilize the needle during the injection.

The above description relates primarily to a supporting means which may be attached to conventional needles for the purposes stated, but it will be apparent that the present invention can also be embodied in a unitary construction comprising a needle and supporting leg members extending therefrom. That is, the device could be fabricated in the form of a unitary element with the base section extending from a suitable portion of the needle. In such a case, the leg member or members forming the base section could be secured to the needle portion 16c by welding or other means if desired.

Although but a few embodiments of the present invention have been illustrated and described, it will be ap-

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parent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A device for attachment to a needle used in intravenous injections to provide supporting means to which an adhesive member may be secured comprising a clamping section adapted to resiliently clamp said needle, and a base member comprising a pair of leg members extending from opposite sides of said clamping section at an acute angle to the longitudinal axis of said needle and adapted to rest on the skin adjacent the injection site to provide a relatively large surface to which said adhesive member may be attached for stabilizing said needle.

2. A device for attachment to a needle used in intravenous injections to provide supporting means to which an adhesive member may be secured comprising a resilient U-shaped clamping section adapted to resiliently clamp said needle, and a base member comprising a pair of leg members extending from opposite sides of said clamping section at an acute angle to the longitudinal axis of said needle and adapted to rest on the skin adjacent the injection site to provide a relatively large surface to which said adhesive member may be attached for stabilizing said needle.

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