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H. MULLER

2,727,512

INFUSION NEEDLE SUPPORT

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Fig. 2

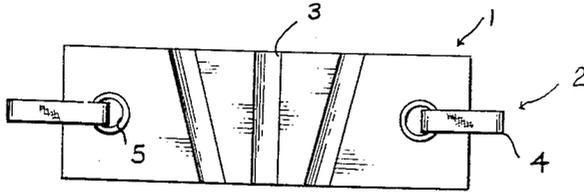


Fig. 1

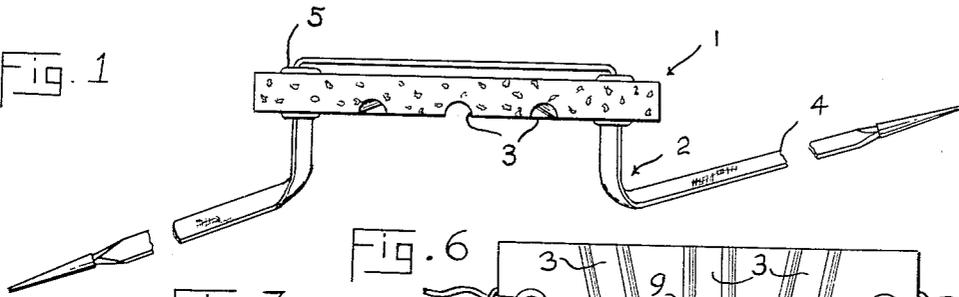


Fig. 6

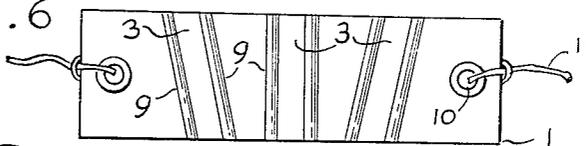


Fig. 7

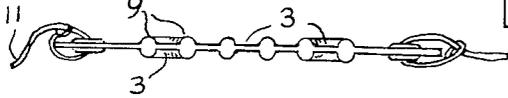


Fig. 3

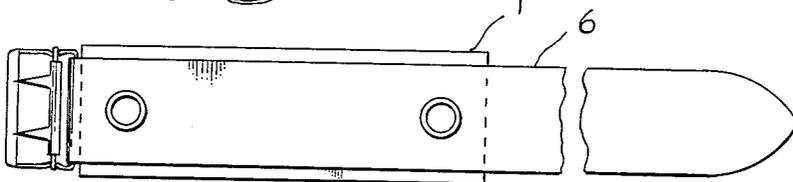


Fig. 4

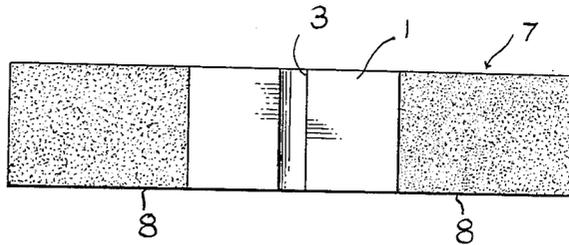
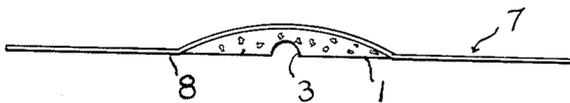


Fig. 5



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## INFUSION NEEDLE SUPPORT

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3 Claims. (Cl. 128—214)

This invention relates to new and useful improvements in infusion needle supports, and it has for its general object the provision of means of a practical and advantageous nature for supporting in a set position an infusion needle.

Infusion needles, among other things, are used for intravenous feeding. When so used, a flexible tube is connected at one end to a supply container and at the other end to the infusion needle. In the feeding operation the needle point is injected into a vein of the body and is usually held in position by means of one or more strips of adhesive tape. Because of the nature of the tape, many well known disadvantages are commonly associated with this method of holding the needle in place. One of these disadvantages is slipping of the needle from its set position due primarily to the inadequacy of the tape as a securing agent. Slipping of the needle from its position may result in serious discomfort to the patient as well as in a loss of very valuable infusion material. Often, loosening of the tape is caused by moisture, such as perspiration, as well as a number of other reasons. The adhesive nature of the tape also creates difficulties in its use as well as in its removal. These are but a few of the many disadvantages associated with the use of adhesive tape alone to secure an infusion needle in position.

Now, I have invented a novel device which may be utilized for securing an infusion needle in place in a practical and most simple manner without experiencing any of the disadvantages of the old and common method by which this is done.

My invention comprises a strip of material provided with fastening means, and which is of such a nature that an infusion needle, after it has been set, may be securely held in place without fear of its slipping free or other difficulties.

A general object of the invention is a practical and easily attachable means for supporting an infusion needle or the like in a set position.

Another object of the invention is an infusion needle support formed of soft material and provided with suitable fastening means.

A further object of the invention is an improved device whereby the supply tubing of an infusion needle or the like may be secured in one or more positions upon a limb of the body of a person in accordance with the directional position of the needle.

The foregoing objects and advantages of this invention, as well as others, will become manifest as this specification unfolds in further detail and as it is read in conjunction with the accompanying drawings, wherein:

Fig. 1 is a side elevational view of an infusion needle support embodying my invention;

Fig. 2 is a bottom plan view thereof;

Fig. 3 is a top plan view of a modified form of the invention;

Fig. 4 is a bottom plan view of a further modification of the invention;

Fig. 5 is a side elevational view thereof;  
Fig. 6 is a further modification which may be taken either as a top or bottom plan view thereof; and  
Fig. 7 is a side elevational view thereof.

In the several drawings, wherein like parts are represented by like numbers and referring particularly to Figs. 1 and 2, there is disclosed an infusion needle supporting device, comprising a supporting element 1 provided with suitable means 2 for fastening the device about a limb or portion of the body.

The supporting element 1 is of flexible material so that it may be bent to conform to the various curvatures of the limbs or body. In using the device, an infusion needle is first injected into a vein of the body, the element 1 is then placed near the needle and over the connecting supply tubing. The fastening means is then secured about the body or limb in such manner as to draw the element 1 about the supply tubing and thereby restrain the supply tubing as well as the connected needle against free movement.

To prevent any possibility of the supply tubing moving from its set position, channel means 3 adapted to receive and contain a portion of the supply tubing is provided in the face of the underside of the supporting element 1.

The supporting element 1 is preferably of soft material, which may be rubber, plastic, or the like, which when fastened about the supply tubing of the infusion needle is adapted to close around the tubing. Here, sponge rubber is utilized, because it is not only soft, but is also flexible as well as resilient. These qualities in the supporting element provide many desirable advantages. Sponge rubber is also desirable because of its absorbing qualities. It will tend to absorb moisture and sweat, and thereby prevent the tubing from slipping its position. The sponge rubber material of the supporting element is further desirable because of its tendency to grip the body when pressed in place, whereby the set position of the infusion needle is positively assured against slipping. The softness of the sponge rubber further permits the channel 3 to close about the supply tubing and securely hold it when the fastening means is drawn about a limb of the body. Closing of the channel means about the supply tubing so secures and restrains the tubing in its set position as to prevent it from moving either forwards, rearwards or sideways.

The supporting element 1 may assume various forms and lengths. The form shown in Fig. 1 is designed primarily for securing the position of an infusion needle to a limb of the body. It is elongated and of narrow width. Its thickness is sufficient to allow for the channel means 3 in its bottom face. It preferably includes a plurality of channels 3. Here, three such channels are provided, one of which is directly across the face of the element 1, and the other two of which are located one on each side of the center channel and at an angle across the element 1. By this arrangement the directional position of the infusion needle may be varied to any of a plurality of positions and the connecting supply tubing may still be received and held in one, or if necessary more channels of the supporting element 1.

The fastening means here comprises a suitable string, such as a lace 4 carried in grommet holes 5, one at each end of the supporting element 1. The grommets are positioned vertically in the element 1 near the ends thereof. One end of the lace 4 extends up through the eye of one grommet, is then carried over the top or back of the supporting element and then extends down through the eye of the other grommet.

Now, further illustrating the use of the invention, assuming intravenous feeding is to take place through a limb of the body, for example, the forearm, the infusion needle is injected into a vein of the arm, the element 1

is then placed over the supply tubing, preferably the hard connecting portion customarily near the needle, and so that the supply tubing is confined in a selected channel 3. The two free ends of the lace 4 are drawn together and fastened about the forearm. In doing this the supporting element is drawn about the limb and the channel 3 closes upon and about the supply tubing, whereupon the latter becomes confined in the channel and restrained from moving its position or slipping free of the vein.

It is clear that the fastening means may also assume a variety of forms and it may also be replaced by an elongated strip of adhesive tape, as in Fig. 5, or by a strap and a strap engaging element as indicated at 6 in Fig. 3.

The invention also finds advantage in supporting the pump tubing used in the well known Wagenstein treatments, wherein a tube of about the same diameter as that connected to an infusion needle is inserted in the nose of a patient. In these cases, the invention is applied over the tubing about the forehead and is fastened about the head, thereby eliminating numerous strips of adhesive tape that would otherwise be used.

In those cases where the infusion needle is applied to a hand or finger, a modified form of the invention, as shown in Figs. 4 and 5, is desirable. In this form of the invention a support element 1, also of soft and flexible material, such as sponge rubber or the like is provided. It is of a size suitable for application to a small area, as would be the case when applied to a finger of the hand. The element 1 includes a channel 3 across the face of its underside adapted to receive and contain the supply tubing, and it is provided with suitable fastening means that will enable the element 1 to be held securely upon a finger of the hand. Here, the fastening means is a strip of adhesive tape 7, to the central area of which the element 1 is adhered. This form is used in the same manner as the form described above. After the infusion needle has been injected into a finger or the hand, the tubing is extended along a finger, the element 1 is then positioned in such manner that a portion of the supply tubing will be contained in the channel 3. The ends of the adhesive tape are then wrapped about the finger, with which action the element 1 is flexed and the channel 3 closes tightly about the tubing and secures it in place.

It is to be noted that the top surface or back of the element 1 in Fig. 5 is arcuate. This arrangement is desirable as it enables the utilization of the entire area of the ends 8 of the tape. For, it can be seen that in securing the device about a finger the element 1 will flex or bend and the ends thereof being tapered will meet the finger surface. This will enable the ends 8 to adhere to the finger at the junction of the tape with the tapered ends of the element 1 as well as over the entire area of the tape.

A removable strip of gauze, not shown, such as is conventionally used on adhesive bandages, may be used as a protective covering on the tape ends 8 until it is desired to use the device.

It is understood, as previously indicated, that the body element 1 of the several forms of the invention described above may also be made of plastic or other soft material.

In Figs. 6 and 7 a further form of the invention is dis-

closed, in which the body element comprises a strip of plastic material 1 which is provided with a plurality of channels 3 formed by a plurality of ribs 9. The plastic strip is substantially flat and thin, and it is formed of a soft pliable plastic, such as polyethylene. The ribs are unitary with the strip 1, and each rib is common to both the upper and lower surfaces, whereby a channel 3 is formed both on the upper and lower surfaces of the strip between each pair of ribs. The strip is provided at each end with holes 10 adapted to receive a suitable fastening element 11 for securing the device about an object. The outer edges of the holes are thickened to provide strength and protection against tearing in utilizing the fastening means. It is clear in utilizing this form of the invention that when a channel 3 is placed over a section of an infusion supply tubing and the strip 1 is fastened about a limb of the body, the ribs 9 on opposite sides of the channel will be drawn towards the tubing to press upon it and to restrain it against all movement. And, it is also apparent that in this form of the invention that the channels 3 on either the top or the bottom surfaces of the strip might be utilized.

Having described my invention, it is my intent, however, to claim the invention not only as shown and described, but also in all such forms and modifications thereof as may be reasonably construed to be within the spirit of the Letters Patent and the scope of the appended claims.

I claim:

1. In an infusion needle support of the character described, an elongated element of sponge-like material having a channel across the face of the underside thereof, such channel being adapted to confine therein a portion of an infusion needle supply tube, and fastening means at the ends of the elongated element adapted for securing the elongated element to a limb of a person and by such arrangement holding the infusion needle in a set direction in said channel, the fastening means comprising a strip of adhesive tape adhered to the back of the element and having its ends extending beyond the ends of the latter.

2. In an infusion needle support of the character described, a resilient body element having one face thereof secured to an elongated strip of adhesive tape and having a channel across its bottom face adapted to receive a portion of an infusion needle supply tube, the ends of the adhesive tape extending beyond the body element and serving as means to fasten the latter about an appendage of the body, and the resilient body element being adapted when flexed during such fastening operation to close the channel upon the tubing.

3. In an infusion needle support as set forth in claim 2, wherein the resilient body element is characterized by an arcuate back portion secured to the adhesive strip.

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