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SHIELDING DEVICE FOR INTRAVENOUS FEEDING APPARATUS

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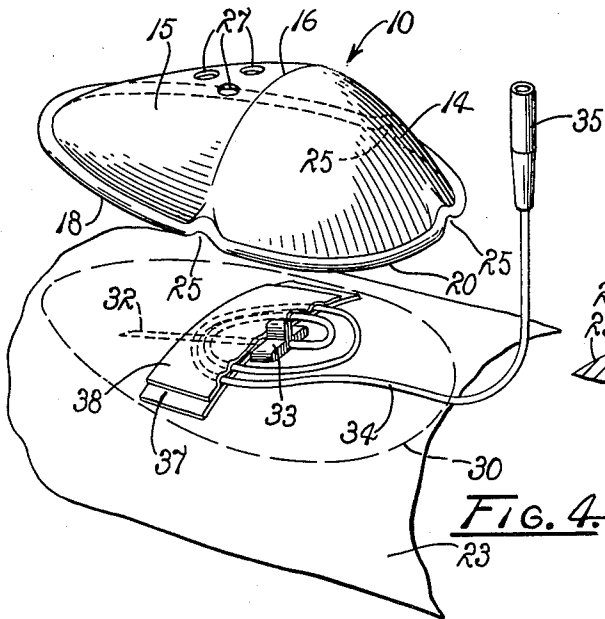


FIG. 4.

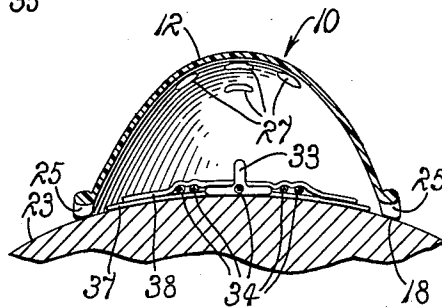


FIG. 2.

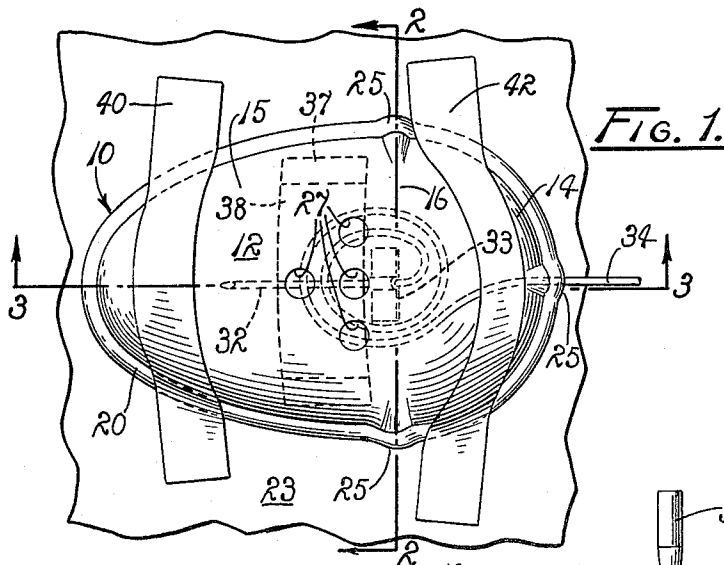


FIG. 1.

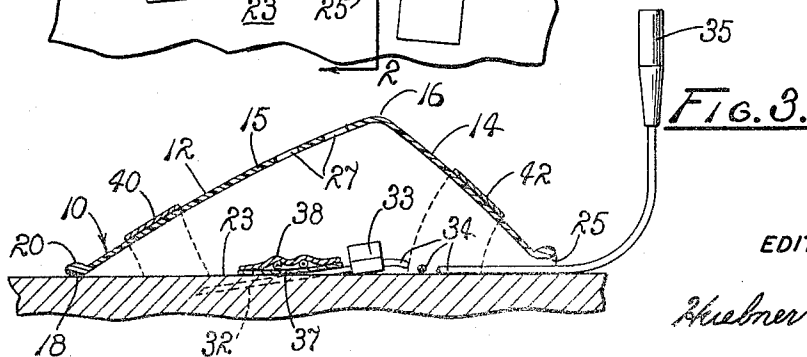


FIG. 3.

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3,194,235 SHIELDING DEVICE FOR INTRAVENOUS FEEDING APPARATUS

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4 Claims. (Cl. 128—132)

The present invention relates to a shielding device for protecting infusion needles during intravenous feeding operations and the like and more particularly to such a shielding device which effectively protects the needle from dislocation after initial placement.

Infusion needles employed in the intravenous feeding of blood, plasma, glucose water, salt water, and the like are difficult to maintain in their intended positions within the vein of a patient. In conventional practice, the needle is connected to a flexible supply hose leading from a source of feeding liquid. The needle is inserted into the vein of the patient and constrained in such position by a strip of adhesive tape. A supply hose is usually coiled closely adjacent to the needle to permit limited axial movement of the hose without disturbing the needle and is held in place by a second strip of adhesive tape overlaying the first strip of adhesive tape. With such arrangement, the needle remains substantially exposed and may be easily jarred, bumped, and loosened by inadvertent movement of the patient. Serious injury may result by movement of the needle within the vein or if completely dislodged therefrom, the feeding material may be lost and the patient deprived of liquid essential to sustain his life. Such problems are especially prevalent during the intravenous feeding of infants, which are difficult to immobilize during such operation.

Therefore, it is a broad object of the present invention to provide an improved shielding device for infusion needles.

Another object is to provide a shielding device which substantially precludes inadvertent dislocation of such a needle during intravenous feeding operations.

Another object is to provide a shielding device capable of effectively isolating an infusion needle which absorbs shocks from inadvertent contact of the feeding area with adjacent objects or attendants.

Other objects and advantages of the present invention will subsequently become more clearly apparent upon reference to the following description in the specification.

In the drawing:

FIG. 1 is a top plan view of the shielding device of the present invention disposed in covering relation to an infusion needle and supply hose on a fragmentary representation of a body portion of a patient.

FIG. 2 is a transverse vertical section through the shielding device, taken on line 2—2 of FIG. 1.

FIG. 3 is a longitudinal vertical section through the shielding device, taken on line 3—3 of FIG. 1.

FIG. 4 is a perspective view of the shielding device displaced from the feeding area with its assembled operating position on the body portion of a patient indicated by dashed lines.

Referring more particularly to the drawing, a shielding device embodying the principles of the present invention provides a hollow elongated cup 10 of unitary construction having a wall 12 of substantially stiff material such as plastic, lightweight metal, or the like. The wall is formed in a pair of conical segments providing a head segment 14 and a body segment 15 which are oppositely tapered from a common integral base line 16 and with the head segment being of more abrupt taper than the body segment.

The wall 12 forming the segments 14 and 15 has a continuous oval-shaped lower marginal edge 18. A continuous integral flange 20 is extended outwardly from the edge to form a substantially flat base for the wall so that

the shielding device may be mounted tightly against a body portion 23 of the patient with a minimum of discomfort. A plurality of spaced marginal indentations or arcuate portions 25 are provided in the flange 20. A pair of such arcuate portions is disposed at opposite ends of the base line 16 with a third such arcuate portion disposed in the head segment 14 along the longitudinal axis of the cup. A plurality of circular apertures 27 are formed through the wall 12 in the body segment 15 of the cup to ventilate the interior thereof.

As best shown in FIG. 4, the shielding device is adapted to be rested on the body portion 23 of a patient in the position indicated by a dashed line 30 in covering relation to an injection needle 32 having a handle 33. The needle is connected to a supply hose 34 having an extended connecting end 35 adapted to be coupled with a source of infusion liquid, not shown. The needle and supply hose are individually secured to the body portion of the patient by two strips of adhesive tape 37 and 38.

Operation

The operation of the described embodiment of the subject invention is believed to be clearly apparent and is briefly summarized at this point. The needle 32 is inserted into a blood vessel in the body portion 23 of the patient by manipulation of the handle 33 thereof and is constrained in the position shown in FIG. 4 by the strip of adhesive tape 37. The supply hose 34 connected to the needle is coiled in a substantially flat coil around the handle and secured by the second strip of adhesive 38 in overlaying relation to the first strip 37. The elongated cup 10 of the shielding device is then disposed in covering relation to the needle in the dashed line position 30 of FIG. 4. In such position, the supply hose 34 is extended outwardly of the cup through one of the arcuate portions 25 in the flange 20. The shielding device is held in covering relation to the needle by a pair of strips of adhesive tape 40 and 42. The strip 40 of adhesive tape is positioned flatly against the conical body segment of the wall 12 with the ends thereof adhesively engaging the body portion 23 of the patient. Similarly, the strip of adhesive tape 42 is disposed flatly against the conical head segment of the wall 12 and the ends thereof extended outwardly of the cup adhesively to engage the body portion of the patient. It is noted that the mounting strips of adhesive tape 40 and 42 readily conform to the conical shape of the head and body segments of the wall with a minimum of wrinkling which also tend to provide opposite inwardly directed thrust forces on the cup to insure maximum immobility of the cup on the body portion of the patient. The body portion of the patient covered by the shielding device is permitted to "breathe" by way of the apertures 27 in the wall 12 thereof so as not to be adversely affected during extended periods of use.

In view of the foregoing, it is readily apparent that the structure of the present invention has provided an improved shielding device for infusion needles which is effective to preclude inadvertent dislocation of the needle after initial placement. Further, the shield readily absorbs shock forces thereagainst and is effective to isolate the needle from such shocks.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and apparatus.

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

1. A shielding device for protecting an infusion needle disposed through a body portion and into a vein of a

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patient during intravenous feeding from an infusion tubing connected to such a needle, which comprises a hollow cup of unitary construction having a wall of substantially stiff material, said cup comprising a frustoconical body segment and an integral frustoconical head segment which are oppositely tapered from a common integral base line, said head segment having a more abrupt taper than the taper of said body segment, said body segment having a plurality of apertures therein for ventilation and said wall providing a continuous lower edge defined by the bases of said body segment and said head segment, an integral flange extended from said lower edge defining a substantially planar base for the wall to rest against the body portion of the patient with the wall in spaced covering relation to said needle when said needle is disposed through the body portion and into the vein of the patient, said flange being provided with a plurality of indentations being adapted to receive the infusion tubing therethrough and to hold the tubing in freely axially sliding relation and said indentations being spaced around the base of the cup so that at least one indentation is located in the base of the head segment and at least one indentation is located

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along the common integral base line of the two segments, and connecting means mounted on said wall to hold the cup on the body portion of the patient.

2. The device of claim 1 wherein said means for holding the cup against the patient comprises a plurality of adhesive tape strips.

3. The device of claim 1 wherein the hollow cup is plastic.

4. The device of claim 1 wherein two indentations are located along the common integral base line.

References Cited by the Examiner

UNITED STATES PATENTS

703,290	6/02	Mulford	-----	128—154
2,831,487	4/58	Tafilaw	-----	128—350

FOREIGN PATENTS

908,451	9/45	France.
831,757	7/52	Germany.
641,061	8/50	Great Britain.

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