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Muller et al.

[11] **3,878,849**

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[54] SURGICAL TUBE SUPPORTER

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[52] **U.S. Cl.**..... **128/349 R;** 128/DIG. 26; 128/133

[51] **Int. Cl.**..... **A61m 25/02**

[58] **Field of Search**..... 128/DIG. 26, 133, 169–171, 128/327, 349 R, 348, 350 R, 351

[56] **References Cited**

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2,669,231	2/1954	Fisher	128/133
3,086,529	4/1963	Munz et al.	128/327
3,726,279	4/1973	Barefoot et al.	128/327
3,726,280	4/1973	Lacount	128/349 R
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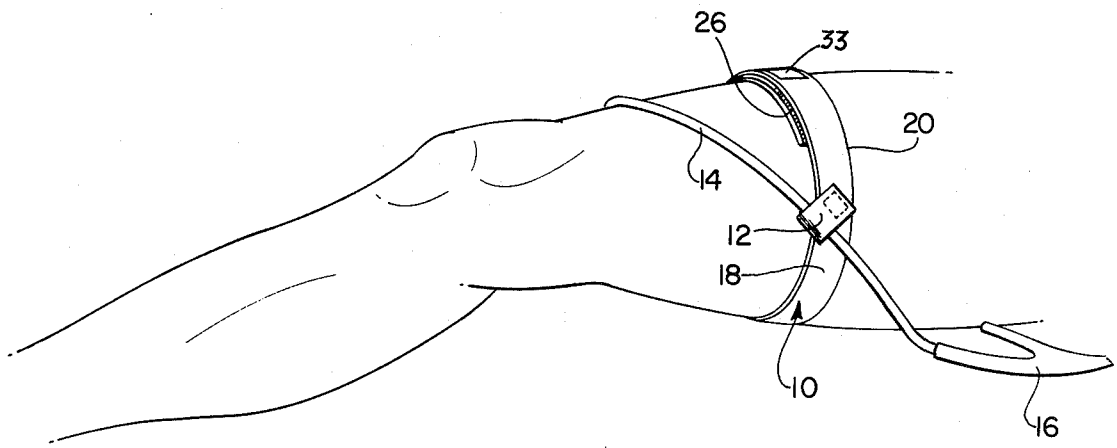
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[57] **ABSTRACT**

A therapeutic appliance is provided for holding a tube, or the like, along a patient's body. An elastic strap has adjustable fasteners at either end and a high friction layer along one face for frictionally engaging the patient's skin so that the elastic strap may be relatively loosely secured about the body with no appreciable constriction thereof. A tube receiving retainer is secured to the strap for releasably holding a catheter drainage tube, or the like. The retainer is a short length of strap similar to the body embracing strap and has one end sewed to the main strap with adjustable fasteners at either end so that the high friction layer may frictionally hold the tube while the elastic exerts little force against the tube.

10 Claims, 5 Drawing Figures



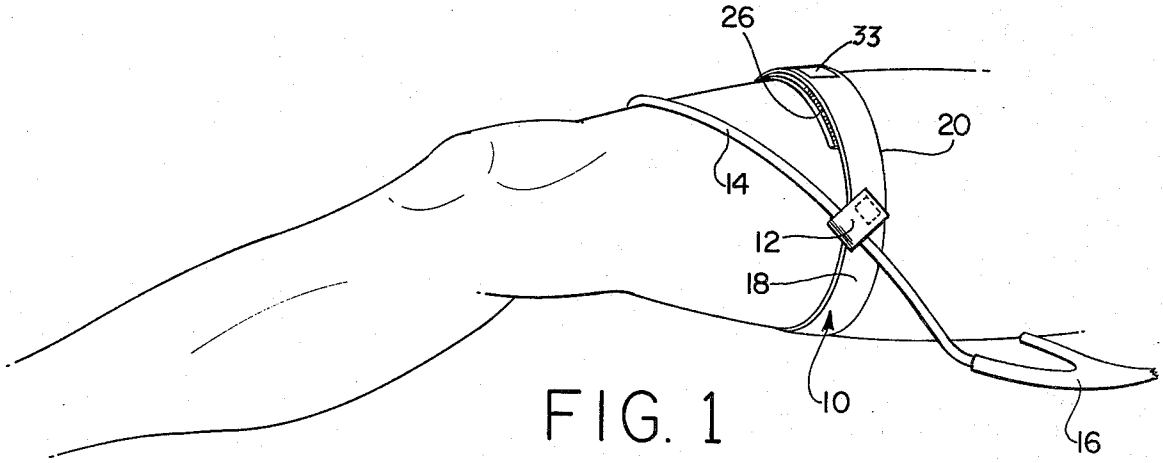


FIG. 1

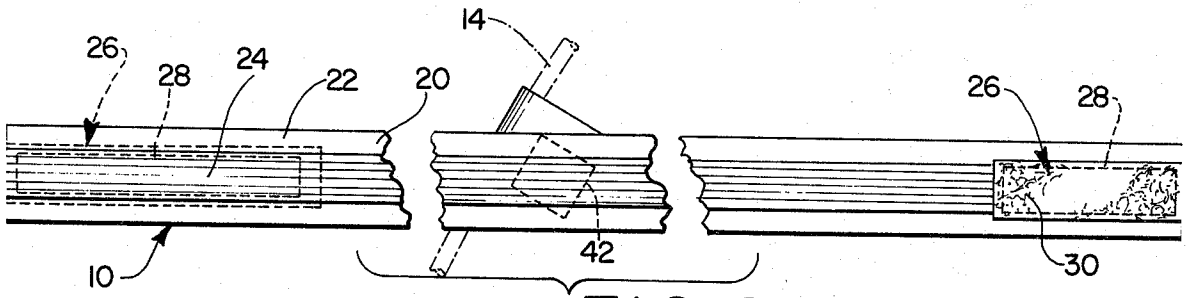


FIG. 2

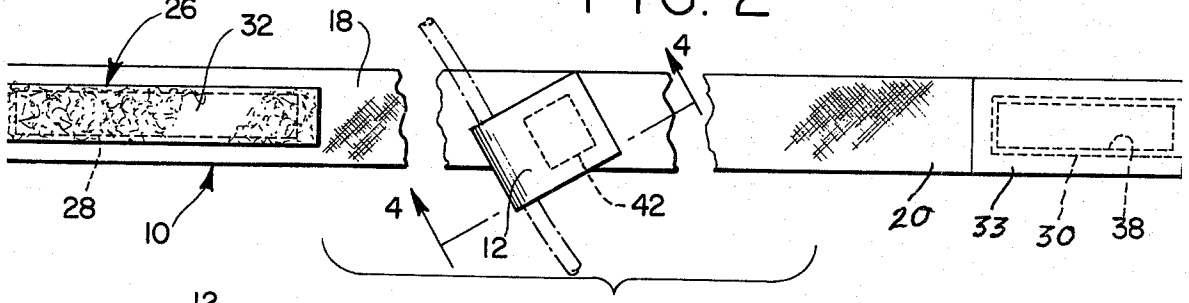


FIG. 3

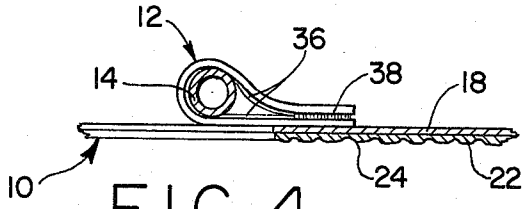


FIG. 4

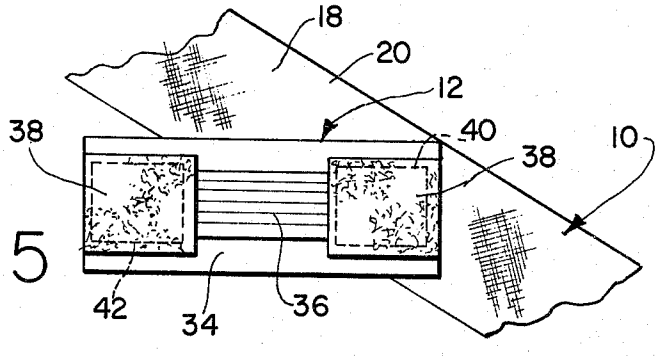


FIG. 5

SURGICAL TUBE SUPPORTER

This invention relates to a therapeutic appliance and, more particularly, to an appliance for securing a tube, or the like, along a patient's body.

BACKGROUND OF THE INVENTION

It is often necessary to support or retain catheter drainage tubes, I.V. tubes, or the like, along the patient's body. This can be done by simply holding the tube in place with adhesive tape, or with gauze wrapped around the tube and the patient's leg or arm, or by various commercial appliances. One such appliance, a CATHETER SUPPORT, is shown in a patent, U.S. Pat. No. 3,726,280, in which an elastic band is secured about the patient's thigh and has an end portion for clamping a portion of the catheter tube itself to the thigh. A major difficulty with this type of appliance is the likelyhood of constricting the thigh. Also, with the tube connection at the attaching end, the catheter tube is likely to be disturbed when adjusting the strap. Also, movement of the legs may interfere with the strap connectors.

Other patents of a somewhat related nature include U.S. Pat. No. 3,730,187, U.S. Pat. No. 3,019,791, U.S. Pat. No. 2,669,231, and U.S. Pat. No. 2,133,130. Other patents known to applicant include U.S. Pat. No. 3,752,158, U.S. Pat. No. 3,273,563, U.S. Pat. No. 3,146,778, U.S. Pat. No. 3,086,529, and U.S. Pat. No. 3,049,123.

It is a primary object of this invention to provide a new and useful therapeutic appliance. Another object is provision of a new and useful therapeutic appliance for securing a tube, or the like, along a patient's body.

More specifically, it is an object of this invention to provide a new and useful therapeutic appliance for securing a tube, or the like, along a patient's body, the appliance including an elastic strap having a high friction layer on one face for engaging the patient's skin so that the strap may be relatively loosely tightened about the patient's body without appreciable constriction of the body. A related object is provision of a retainer in the form of a strap secured at one end to the main strap and having a high friction layer for frictionally holding the tube while applying relatively little force to the tube when the free end of the strap is releasably secured to the fixed end. Longitudinally extending ribs are preferably formed in the high friction layer for increasing its frictional holding capacity and keeping the main strap from moving along the patient's body. Both the main strap and the tube retainer are preferably provided with adjustable fasteners such as the conventional Velcro fasteners.

THE INVENTION IN BRIEF

The invention is, in brief, directed to a therapeutic appliance in the form of an elastic strap which may be adjustably tightened about a portion of a patient's body, such as the thigh, the strap having a high friction layer on one of its faces for engaging the patient's skin so that the strap may be relatively loosely secured about the thigh while being firmly retained thereon by the high friction layer. A retainer for a tube, or the like, is secured to the strap and has adjustable fastener means for holding a tube. The retainer is also preferably in the form of a strap similar to the main strap and having a high friction layer so that the tube may be firmly held in place without exerting a high constrictive force on the tube. The retainer strap is preferably obliquely secured to the main strap for convenient positioning a catheter drainage tube extending, in typical manner, from a catheter tube to a container.

Additional objects and advantages of the invention will be apparent from the following description and the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a fragmentary perspective view of a preferred embodiment of a catheter strap secured about a patient's thigh with a retainer holding a catheter drainage tube;

FIG. 2 is an enlarged, foreshortened view of the inner face of the strap when removed from the patient's thigh, with the drainage tube indicated in phantom lines;

FIG. 3 is a view similar to FIG. 2 but of the outer face of the strap;

FIG. 4 is an enlarged, fragmentary sectional view, taken generally along the line 4—4 in FIG. 3, showing the tube retainer in closed position holding the tube;

FIG. 5 is an enlarged, fragmentary view of the outer face of the strap with the tube retainer in open position to receive the tube.

DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

Referring to the drawing, FIG. 1 shows an elastic strap **10** secured about the thigh of a patient's body and having a retainer **12** holding a catheter drainage tube **14** in place across the patient's thigh. An inner end of the tube is connected in typical manner with the outer end of a typical urinary catheter **16.** Retainer **12** is preferably obliquely secured to an outer face **18** of the strap, at an angle generally as indicated in the drawings, so that the outer end of the drainage tube **14** may be conveniently placed across the thigh of the patient with the inner end of the drainage tube **14** and the catheter **16** slack to avoid pulling on the catheter as the patient moves about.

The illustrated embodiment of the strap **10** includes an elastic fabric portion **20,** an inner face **22** thereof having a high friction layer **24** laminated thereon for preventing slipping of the strap **10** on the patient's thigh so that only very slight tension is required in holding the strap, thus preventing constriction of the leg.

The strap **10** may be of any suitable material such as a commercially available material normally used for waistbands and the like in women's apparel, and manufactured by United Elastic Company, Division of J. P. Stephens and Company, Inc., New Haven, Conn., Model Number 7-4253 WR width 21-Rl, for example.

Opposite ends of the strap **10** are provided with releasable and adjustable fasteners, such as cooperating Velcro fasteners **26** having parts stitched, as at **28,** to opposite ends of the strap **10.** More particularly, one end of the inner surface **22** of the strap **10** has a relatively short Velcro piece **30** secured thereto, and the outer face **18** of the other end of the strap **10** has a relatively long piece of Velcro **32** (approximately **4** inches) secured thereto to permit adjustment of the strap around the patient's thigh while effectively preventing contact of the Velcro piece **30** with the patient's skin. While the surface of the high friction material **24** is available in several patterns, the preferred material has longitudinally extending ribs which cause less abrasion

of the patient's skin than transverse, diagonal or criss-cross configuration. Stitching **28** also secures a label **33** to the out face **18** of the strap **20** opposite the Velcro piece **30.**

The drainage tube retainer **12,** as shown best in FIGS. **4** and **5,** is preferably made of the same material as the strap **10** and has an inner face **34** with a high friction layer **36** having longitudinally extending ribs, as previously described, for gripping the tube **14** with the ribs transverse the longitudinal axis of the tube **14,** to better hold the tube in position. The drainage tube **14** is positioned across the open retainer **12** (FIG. **5**), whereupon the free end of the retainer **12** is folded across the tube **14** and the Velcro fasteners **38** engaged to hold the tube in place, as shown in FIG. **4.** Only a very small amount of force is required against the tube **14** to hold it in place because of the friction layer **36** and its ribs. Stitching **40** secures the Velcro fastener **38** to the fixed end of the retainer **12** and also secures the retainer to the outer face **18** of the strap **10.** Similarly, stitching **42** secures the other Velcro fastener **38** to the free end of the retainer **12.**

While the angular disposition of the retainer **12,** as shown in the drawing, is desirable when the strap **10** is to be secured to the right thigh of the patient, the disposition of the retainer **12** should be reversed if the strap is to be applied to the left thigh. To provide more universal applicability, the retainer **12** may be secured in a perpendicular position relative to the strap **10.**

As shown in FIG. **1,** the retainer **12** is preferably considerably closer to the Velcro fastener **30** on the inner face **22** of the strap **10,** than it is to the Velcro fastener **32** on the outer face **18** of the strap, so that the free ends of the strap may be secured to each other proximate the outer, upper portion of the thigh with the retainer **12** positioned generally as shown along the inner portion of the thigh.

The strap is devoid of any metal parts which may disturb the patient or possibly damage the drainage tube **14.** Since the strap is washable it may be reused by the patient, and the strap may be provided in various lengths suitable for an individual patient.

While the invention has been described and illustrated with reference to a particular embodiment in a particular environment, various changes may be apparent to one skilled in the art and the invention is not to be limited to such embodiment or environment, except as set forth in the appended claims.

What is claimed is:

1. A therapeutic appliance for securing a tube, or the like, along a patient's body member, the appliance comprising a flexible elastic strap for encircling the body member, fastener means spaced apart along the strap for releasably securing the strap about the body member, means in the form of a yieldable layer having a high friction surface extending along one face of the strap for effectively the entire length of the strap between the fastener means for firmly engaging the body member and retaining the strap in place along the body member with sufficiently light pressure exerted by the strap that there is substantially no appreciably constriction of the body member by the strap, said means further comprising a raised pattern on said surface for more secure engagement of the body member by the appliance, and means comprising a retainer operatively associated with the strap for receiving and retaining the tube.

2. An appliance as set forth in claim **1** in which the pattern comprises ribs extending longitudinally of the layer.

3. An appliance as set forth in claim **1** in which the retainer comprises a strap, means for securing the last said strap about the tube, and means in the form of a yieldable high friction layer on one face of the last said strap for engaging the tube and firmly retaining the tube in place.

4. An appliance as set forth in claim **1** in which the strap has opposite end portions, the fastener means includes cooperating fastener parts, one on each of said end portions, for releasably securing the strap about the body member, and the retainer is secured to the strap intermediate said end portions.

5. An appliance as set forth in claim **4** in which the retainer is secured to the strap substantially closer to one of the end portions than to the other.

6. An appliance as set forth in claim **5** in which the retainer comprises a second strap having opposite end portions, one secured to a face of the first said strap opposite said layer, cooperating fastener parts on the last said end portions for releasably securing the end portions to each other, and a yieldable high friction layer along one face of the second strap for receiving and firmly retaining the tube with a very small force applied to the tube by the second strap when the ends of the second strap are secured to each other.

7. An appliance as set forth in claim **6** in which the layers of the straps are pliable and have ribs extending longitudinally between the respective end portions thereof, and the fastener parts are adjustable for varying the forces applied to the body and to the tube.

8. An appliance as set forth in claim **7** in which said fastener parts are Velcro.

9. An appliance as set forth in claim **1** in which the strap has opposite end portions with cooperating fastener parts for securing the strap about the body, and the high friction surface is pliable and has ribs extending longitudinally between the end portions of the strap, and the fastener means is adjustable for varying the force applied by the strap to the body.

10. An appliance as set forth in claim **1** in which the fastener means has cooperating fastener parts spaced apart along the strap, and the retainer is secured to the strap closer to one of the fastener parts than to the other.

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