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Kroeger

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[45] **June 18, 1974**

[54] **REMOVABLE CUSHION FOR RESTRAINING DEVICES**

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[21] Appl. No.: **242,098**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 152,225, June 11, 1971, abandoned.

[52] **U.S. Cl.** **128/134,** 2/319

[51] **Int. Cl.** **A61f 5/37,** A61g 7/06

[58] **Field of Search** ..... 128/134, 132 R, 132 D, 128/133, DIG. 15; 2/319, 321; 54/65, 66, 67, 68

[56] **References Cited**

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Primary Examiner—Richard A. Gaudet
Assistant Examiner—G. F. Dunne
Attorney, Agent, or Firm—Christie, Parker & Hale

[57] **ABSTRACT**

A device for reducing the surface pressure on a patient's body caused by a restraining belt includes a cushion having a front side with a compressible thickness disposed against the patient's body. Fastening means on the back side of the cushion hold the cushion in a fixed position against the patient's body, and thereby protect the patient from contact with the belt. In one form of the invention, the fastening means includes an elongated flexible and movable flap which fits around the restraining belt, and securing means, preferably cooperating elongated "Velcro" strips, for releasably fastening the free end of the flap to the back side of the cushion. The flap, in its fastened position, forms a tunnel around the restraining belt to hold the cushion against a patient's body. In another form of the invention, the fastening means includes a pair of longitudinally spaced apart straps on opposite sides of the cushion, and respective loops aligned longitudinally with the straps. The straps extend over the ends of the restraining belt, through their respective loops, and are folded back on themselves to be secured to the back side of the cushion.

3 Claims, 6 Drawing Figures

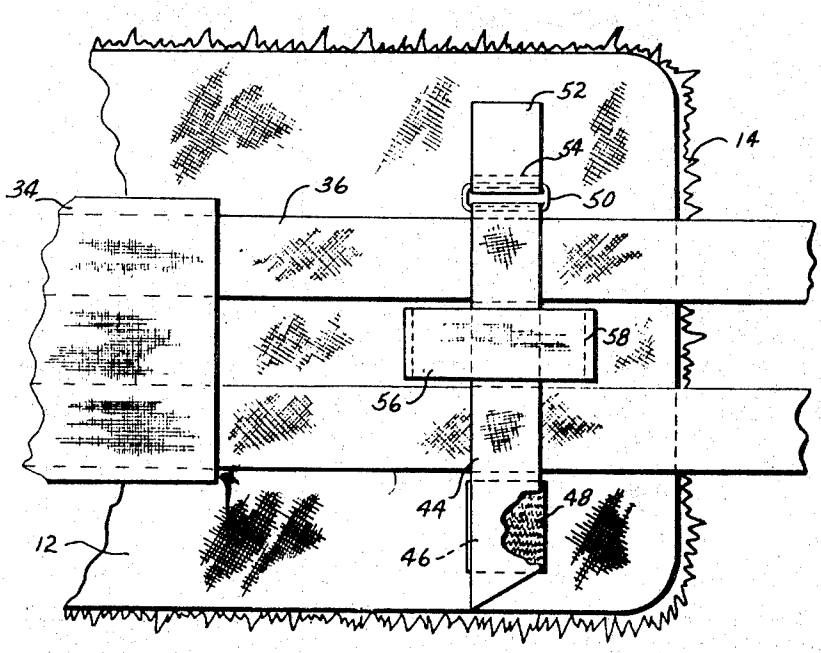

FIG_1

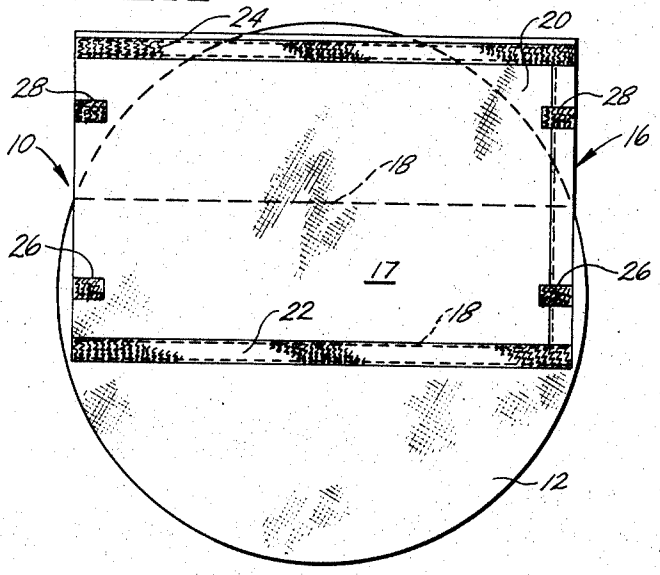

FIG_4

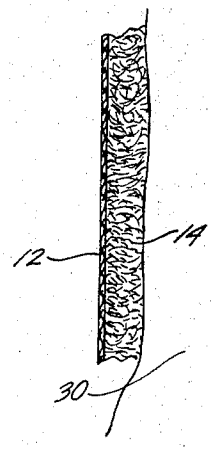

FIG_3

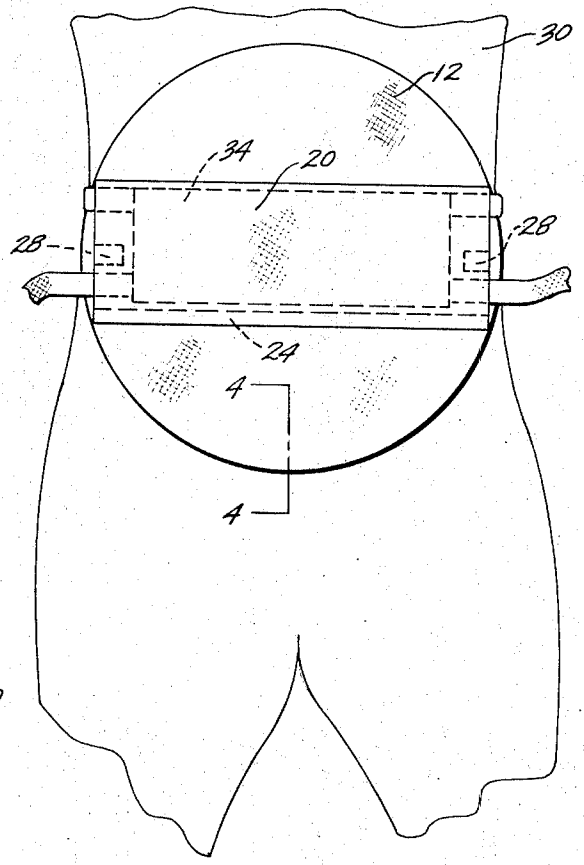

FIG_2

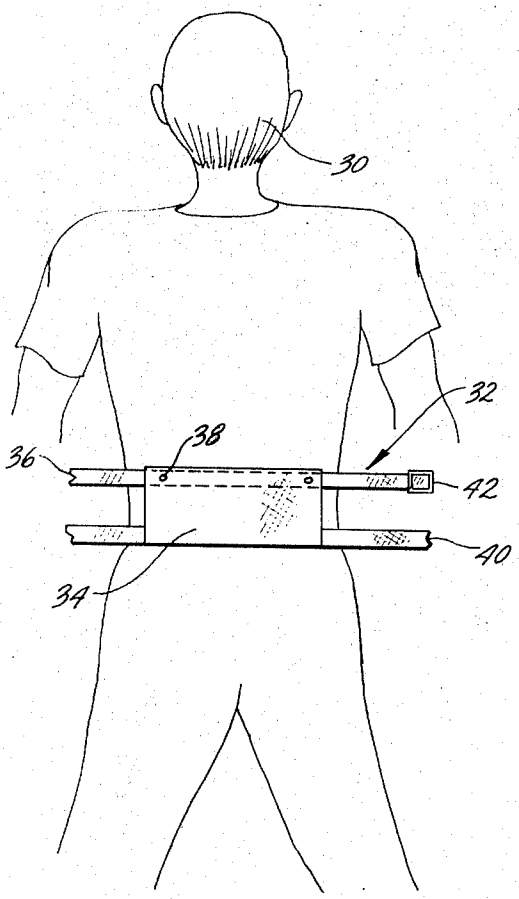

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FIG. 5

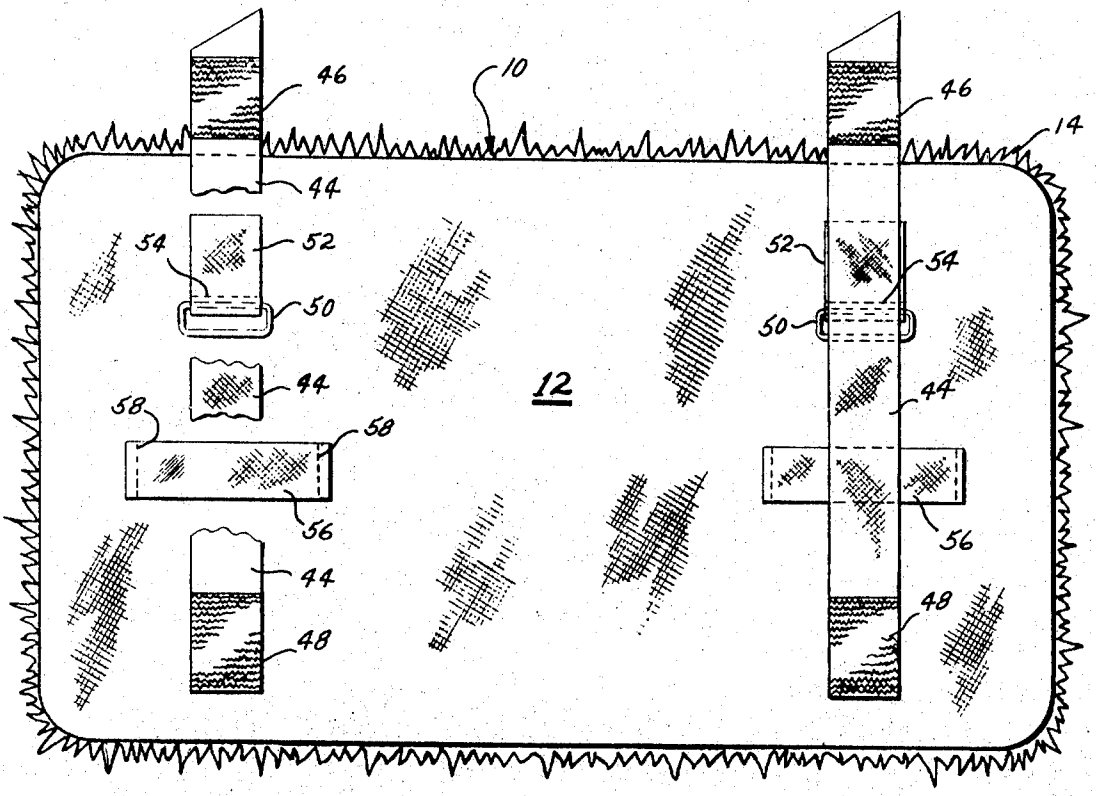
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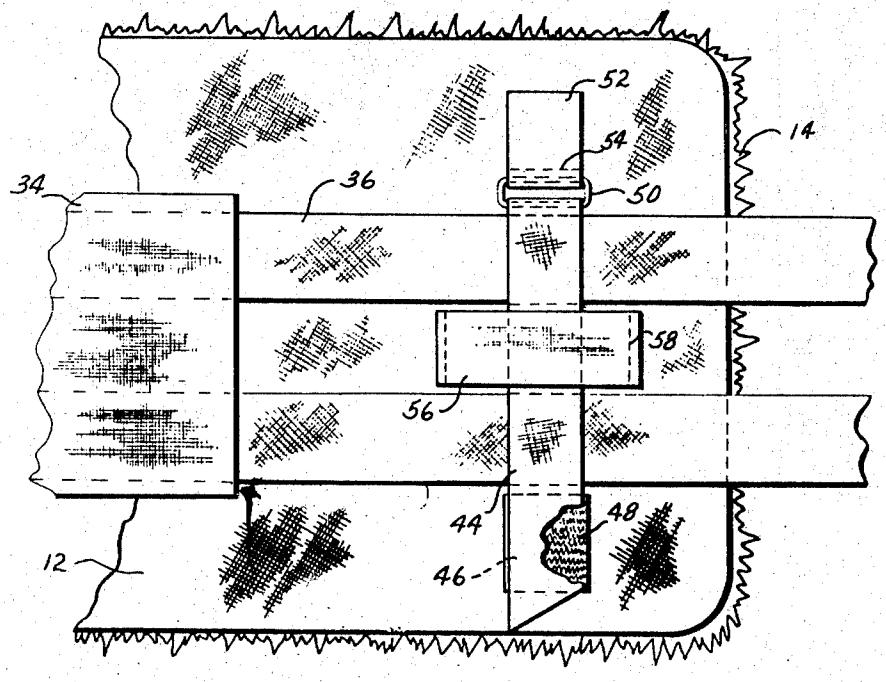
FIG. 6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REMOVABLE CUSHION FOR RESTRAINING DEVICES

CROSS-REFERENCE TO RELATED APPLICATION

This is a continuation-in-part of my copending application, Ser. No. 152,225, filed June 11, 1971, now abandoned.

BACKGROUND OF THE INVENTION

This invention relates to a cushion adapted for releasable connection to a hospital restraining belt to protect a patient from the skin irritations and sores ordinarily caused by contact with restraining belts and the like.

There are a number of restraining devices for supporting a hospital patient while he is in a bed or wheelchair. A common restraining device includes a first pair of straps wrapped around the patient's waist, and a second pair of straps extending outwardly in opposite directions for attachment to the wheelchair or bed. Another common restraining device provides straps which are wrapped around the patient's waist and then looped around the back of the wheelchair or tied to a point on the bed remote from the patient.

The relatively narrow straps of these common restraining devices become uncomfortable for the patient after a relatively short time, because they rub against his body and can pinch his skin when he bends his upper trunk forward. Moreover, the restraining belts usually cause the patient's hospital gown to wrinkle, which rubs and irritates the patient's skin, often causing decubitis sores. Thus, it is common for hospital patients to place their blankets between the restraining belt and their body to reduce the skin irritations caused by the belt.

SUMMARY OF THE INVENTION

This invention provides a cushion which protects hospital patients from the skin irritations and sores ordinarily caused by hospital restraining belts.

Briefly, the cushion has a front side with a compressible thickness, and a rear side to which flexible, releasable fastening means are secured. The fastening means include a free end remote from the back side of the cushion, and means for releasably securing the free end of the fastening means to the back side of the cushion. In use, the compressible side of the cushion is placed against the patient's body, and the fastening means is releasably secured around the portion of the restraining belt which ordinarily causes surface pressure on the patient's body. Thus, the cushion is held between the patient's body and the restraining belt to prevent the belt from rubbing and causing skin irritations.

In a preferred form of the invention, the releasable fastening means includes a pair of longitudinally spaced apart elongated straps secured to opposite sides of the back side of the cushion, and a separate loop secured to the back side of the cushion at a point spaced longitudinally from each strap. In use, each strap is extended over a respective end portion of the restraining belt, threaded through its respective loop, folded back on itself, and extended again over the end portion of the belt, with its free end being releasably secured to the back side of the cushion to hold the cushion in place on the belt.

In another form of the invention, the fastening means comprises a flap with an elongated strip of thistle cloth material secured to its free end. An elongated strip of cooperating thistle cloth material is secured to the back side of the cushion. In use, the flap is wrapped around the restraining belt, and the thistle cloth strips are thereafter secured to each other to form a tunnel around the restraining belt to hold the cushion in a fixed position against the patient's body.

Thus, the cushion can be applied to a restraining belt or removed from it relatively quick and easily. The releasable feature of the cushion is particularly important because it enables the cushion to be applied to the different sizes of hospital belts presently in use. Therefore, it eliminates the need for permanently securing pads to these restraining belts, or modifying the belts to facilitate use with a cushion. Moreover, one or more cushions of this invention can be applied to the particular point, or points, of irritation.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other aspects of the invention will be more fully understood by referring to the following detailed description and the accompanying drawings, in which:

FIG. **1** is an elevation view showing a cushion with a flexible and movable flap secured to its back side;

FIG. **2** is a fragmentary schematic elevation view showing a typical hospital restraining belt applied to a patient;

FIG. **3** is a fragmentary elevation view showing the cushion applied to the restraining belt;

FIG. **4** is a sectional elevation view taken on line **2—2** of FIG. **3** showing the compressible side of the cushion against the patient's body;

FIG. **5** is a fragmentary elevation view showing an alternate embodiment of the cushion in which a pair of straps with cooperating loops are secured to the back side of the cushion; and

FIG. **6** is a fragmentary elevation view showing the cushion of FIG. **5** applied to the restraining belt.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. **1** and **2**, a cushion **10** includes a flexible sheet **12**, and a multiplicity of relatively thin elongated fibers **14** covering one surface of sheet **12**. Preferably, sheet **12** is made of woven fibers, such as cotton or nylon. This makes the cushion rugged enough to stand up under normal hospital use, and permits the cushion to be laundered by ordinary methods.

The fibers **14** form a thick mat of compressible thickness suitable for cushioning the body of a hospital patient against the surface pressure ordinarily caused by hospital restraining belts and the like. Fibers **14** may be woven into the sheet in a conventional and well known manner, although they also may be secured to the sheet by other suitable methods such as bonding, for example. The fibers preferably are a polyester type synthetic fiber, such as the fiber presently sold under the trademark "Kodel." However, other suitable deformable materials may be used, such as fibers made of nylon, wool, or cotton.

A large, substantially rectangular, piece **16** of rugged flexible material such as cotton, nylon, linen, or canvas is secured to the side of sheet **12** opposite fibers **14**. A lower half **17** of piece **16** (as viewed in FIG. **1**) is fixedly secured to the central portion of sheet **12** by two spaced apart, parallel rows of stitching **18**, one row

extending along the center of piece **16,** and the other row securing the lower edge of the piece **16** to sheet **12.** The upper half of piece **16** forms a flexible flap **20** which is movable relative to sheet **12.**

A first elongated strip **22** of thistle cloth material is fixedly secured to sheet **12** adjacent to the bottom edge of the lower half **17** of piece **16.** Thistle cloth strip **22** preferably is "Velcro" material of the "hook" type. "Velcro" strip **22** preferably extends the entire width of sheet **12,** as shown in FIG. **1.** A second elongated strip **24** of thistle cloth material is fixedly secured to the free end of flap **20.** Preferably, strip **24** is made of "Velcro" material of the "pile" type. "Velcro" material is well known and described in U.S. Pat. Nos. 2,717,437 and 3,009,235. "Velcro" strip **24** preferably extends the entire width of flap **20,** and is adapted to be firmly, but temporarily, secured to "Velcro" strip **22** when flap **20** is folded to overlie lower half **17** of piece **16.** Other well known fasteners such as snaps, buckles, etc., can be substituted for the "Velcro" fasteners, although the latter are preferred because of the quickness and ease with which they may be applied or removed.

A pair of longitudinally spaced apart short pieces **26** of thistle cloth material lying on the longitudinal centerline of lower portion **17** of piece **16** are secured adjacent to opposing outer edges of lower portion **17.** Preferably, short pieces **26** are "Velcro" material of the "hook" type. A pair of cooperating longitudinally spaced apart short pieces **28** of "Velcro" pile material positioned on the longitudinal centerline of flap **20** are secured adjacent opposing outer edges of the flap **20.** Thus, when flap **20** is folded to overlie the lower portion **17,** "Velcro" pieces **28** overlie "Velcro" pieces **26** and may be releasably secured to each other by the application of pressure.

The use of cushion **10** is best understood by referring to FIGS. **2, 3,** and **4.** A hospital patient **30** is restrained in a hospital bed (not shown) or wheelchair (not shown) by a variety of restraining devices adapted to fit around his waist. FIG. **2** shows a typical hospital restraining device **32** which includes a base portion **34** made of a rugged flexible material such as cotton, nylon, or canvas. An elongated waist strap **36** is secured to the upper edge of base portion **34** by stitching (not shown) and rivets **38.** A second elongated strap **40** parallel to waist strap **36** is secured to the lower edge of base portion **34.** During use of restraining device **32,** waist strap **36** is pulled tightly around the patient's waist, or lower torso, and fastened to a buckle **42** at the end of the strap. Buckle **42** may be provided with a lock for use with uncooperative patients. The ends of strap **40** are extended outwardly from the patient for connection to opposite sides of the patient's hospital bed, or wheelchair. Since the restraining device generally is wrapped rather tightly around the patient's body, waist strap **36** and base portion **34** ususally cause the patient's hospital gown to rub against his skin when he moves. It has been found in practice that restraining belts of this type cause skin irritations and decubitis sores in a substantial number of patients who are restrained in their beds or wheelchairs.

Cushion **10** protects patient **30** from the skin irritations normally caused by hospital restraining devices. During use of cushion **10,** the surface, consisting of compressible fibers **14,** is disposed against the patient's body in the area normally subjected to surface pressures caused by the restraining device. In the restraining device shown in FIG. **3,** straps **36,** rivets **38,** and base portion **34** ususally rub against the patient's body and cause irritation. These portions of the restraining device are normally in contact with the patient's back. Thus, cushion **10** is placed against the area of the patient's back normally exposed to these portions of restraining device **32.** After the cushion is so positioned, the restraining device is placed against the lower portion **17** of piece **16,** as shown in FIG. **4.** Thereafter, flap **20** is folded so as to overlie both base portion **34** of the restraining device and the lower portion **17** of piece **16.** "Velcro" strip **24** is then firmly pressed against "Velcro" strip **22** to form a tunnel around base portion **34** of the restraining device. Flap **20** also is secured adjacent its outer edges between waist strap **36** and strap **30** by firmly pressing short "Velcro" strips **28** against their cooperating short "Velcro" strips **26.** If it is desired to remove the cushion, flap **20** is simply pulled away from the restraining device to release the cooperating "Velcro" strips from engagement with each other.

FIGS. **5** and **6** show alternate means for releasably securing cushion **10** to restraining belt **32.** In the alternate embodiment, a pair of laterally spaced apart, elongated straps **44** are secured to opposite sides of sheet **12** on the side of the cushion opposite fibers **14.** As shown best in FIG. **5,** one end of each strap is permanently secured to a respective lower corner portion of the cushion so the straps extend vertically along opposite sides of the cushion. The remaining portion of each strap is freely movable, and extends beyond the upper edge of the cushion. A separate elongated section **46** of "Velcro" hook material is secured adjacent to the free end of each strap **44.** A separate cooperating section **48** of "Velcro" pile material is permanently secured to the back side of the cushion below the fixed end of each strap.

A pair of laterally spaced apart square-rings **50** are secured to opposite sides of sheet **12** in longitudinal alignment with straps **44.** Each ring is secured to a respective upper corner of the cushion by a separate flexible elongated piece **52** which is looped through its corresponding ring and permanently stitched to sheet **12.** A line of transverse stitching **54** in each piece forms a separate tunnel for holding one end of each ring in a fixed position on the back of the cushion. The remaining portion of the ring is freely movable relative to the cushion, so the ring may be lifted to provide room for easily threading a strap through it.

A pair of laterally spaced apart, transverse belt loops **56** are permanently secured to opposite sides of sheet **12** by longitudinal stitching **58.** Each belt loop **56** is aligned longitudinally with a respective strap and its corresponding square-ring, and is positioned between the ring and the strap's point of attachment to the cushion.

Referring to FIG. **6,** use of the cushion is carried out by placing it between a patient (not shown in FIG. **6**) and his restraining belt **32.** The cushion is then releasably secured to the belt by extending each strap **44** over restraining strap **40** of the belt, through its corresponding loop **56,** over restraining strap **36,** and threading the strap through its respective ring **50.** Each strap **44** is then folded back on itself and again extended over restraining strap **36,** through loop **56,** and over restraining strap **40.** The free end of each strap **44** is then releasably secured to the back side of the cushion by

pressing "Velcro" section **46** firmly against "Velcro" section **48.**

Belt loops **56** hold straps **44** in a fixed position relative to the cushion, and cooperate with the "Velcro" strips **46, 48** to substantially prevent the straps from coming loose during use. Moreover, belt loops **56** provide means for separating restraining strap **36** from strap **40** so the two straps do not become tangled during use.

The embodiment shown in FIGS. **5** and **6** is especially useful for bed patients who must be restrained for long periods of time, and who are quite active. Such patients, by their movements, can cause a cushion with a releasable fastening means to become loosened from the restraining belt. The releasable fastening means shown in FIGS. **5** and **6** substantially prevents the cushion from being loosened from the restraining belt during normal movements of an active patient. Belt loops **56** and rings **50** cooperate with "Velcro" strips **46, 48** to provide combined means for holding the straps in a fixed, but releasable, position on the back of the cushion, which substantially prevents the cushion from coming loose from the belt during use.

Thus, the cushion can be applied to a restraining device or removed from it quickly and easily. Moreover, since the cushion is adapted for releasable engagement with a restraining device, it can be applied to different sizes of hospital belts presently in use. It also avoids the need for hospitals to secure pads permanently to restraining devices presently in use. Moreover, several of the cushions may be applied to a given restraining device in the event there are several points of irritation to be protected.

I claim:

1. A device for reducing surface pressure on a patient's body caused by a restraining belt wrapped around the patient's body, the device including

a cushion having a front side with a compressible thickness, and a rear side having a major intermediate portion,

a pair of laterally spaced apart elongated straps secured to the reverse side of the cushion and extending in the same general direction, each strap having a front side and a reverse side, with the reverse side thereof normally overlying the rear side of the cushion and the front side thereof normally facing away from the rear side of the cushion, each strap having only one end thereof secured to the rear side of the cushion so that each strap is freely movable independently of the cushion and extends to a free end remote from the rear side of the cushion, each strap being secured so that the freely movable portion thereof extends across the major intermediate portion of the rear side of the cushion with its front side normally facing away from the rear side of the cushion,

a separate elongated section of a first type of thistle cloth material on the front side of each strap adjacent the free end thereof,

a separate elongated section of a second type of thistle cloth material located adjacent the point of attachment of each strap to the cushion and facing away from the rear side of the cushion, the second type of thistle cloth material being adapted to be releasably secured to the first type of thistle cloth material,

anchoring means attached to the rear side of the cushion in longitudinal alignment with the normal extension of each strap, and

a separate loop associated with each strap, each loop being secured to an intermediate portion of the rear side of the cushion between, and in longitudinal alignment with, its corresponding anchoring means and the point of attachment of its corresponding strap to the cushion so that each strap can be engaged with the anchoring means, folded back on itself, extended over the first portion of the belt, threaded through the loop, extended over a second portion of the belt, and then releasably fastened at the rear side of the cushion.

2. Apparatus according to claim **1** in which the anchoring means comprises a separate ring fixed to the rear side of the cushion in longitudinal alignment with each strap, each ring and the point of securement of its associated strap being on opposite sides of the major intermediate portion of the rear side of the cushion.

3. Apparatus according to claim **1** in which each second section of thistle cloth material is secured directly to the rear side of the cushion.

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