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Konvalin

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[54] **BODY RESTRAINT**

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[52] **U.S. Cl.** **128/134**
[51] **Int. Cl.** **A61f 5/37**
[58] **Field of Search**..... 128/133, 134, DIG. 15, 128/100; 297/384; 119/96; 248/361

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[57] **ABSTRACT**

A body restraint for persons having diminished control of motor functions while sitting in chairs. Adjustable circumference cuffs are placed around the person's legs just under the knee and above the belly of the calf muscle. Retaining rings secured to the cuffs are positioned to the rear of the calves.

First and second straps, both having closed loops at one end, the second having a buckle at the other end, are secured to the front legs of the chair by circumnavigating the chair legs with the free ends and passing them through the closed loops, one strap for each leg. The tongue of the first strap is then passed through the retaining rings of each of the cuffs and secured to the buckle of the second strap.

Sufficient length is left in the strap to allow the person in the chair to have relative freedom of movement of the legs, and yet if he should slide down with his legs moving forward, the straps will hold his lower legs and accordingly will prevent the rest of his body from continuing the downward and forward motion.

10 Claims, 7 Drawing Figures

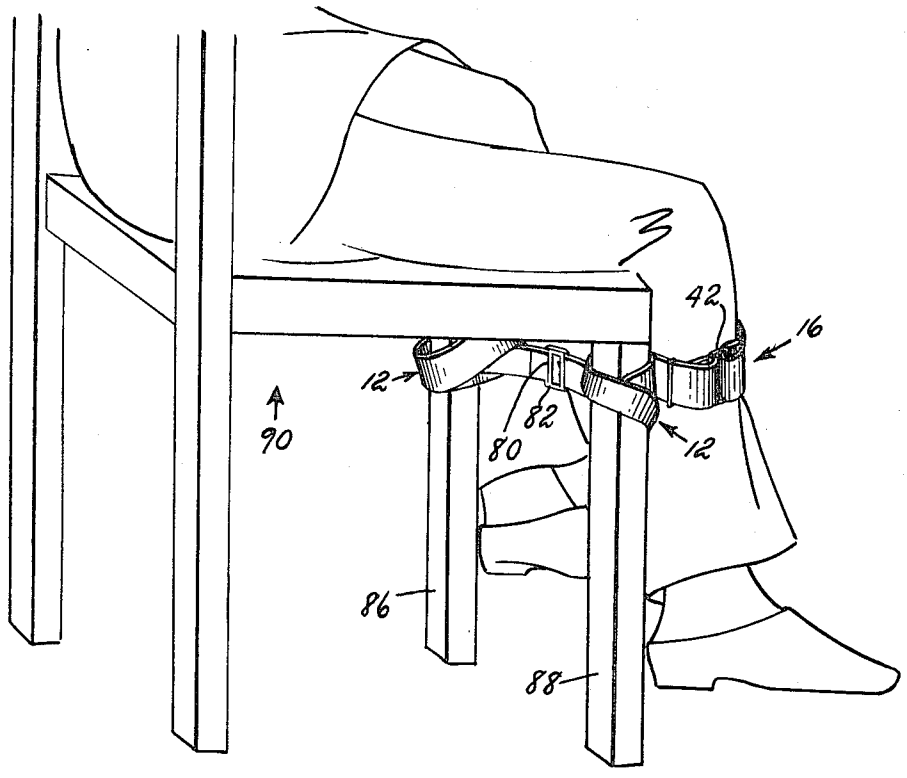


FIG. 1

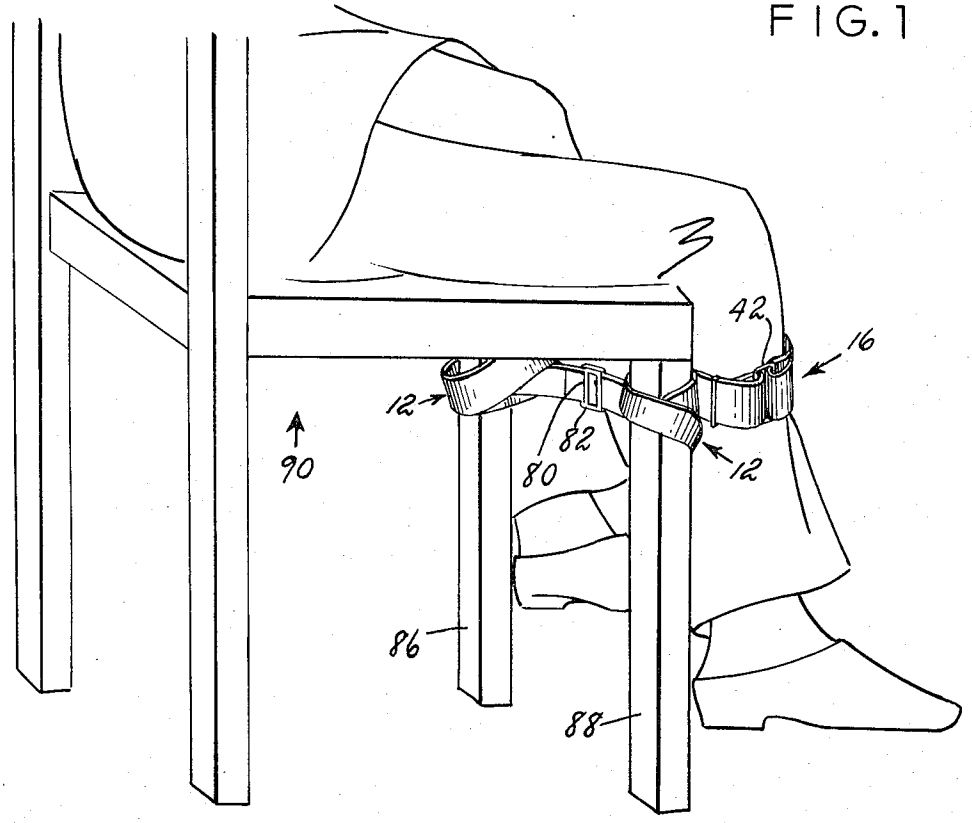


FIG. 2

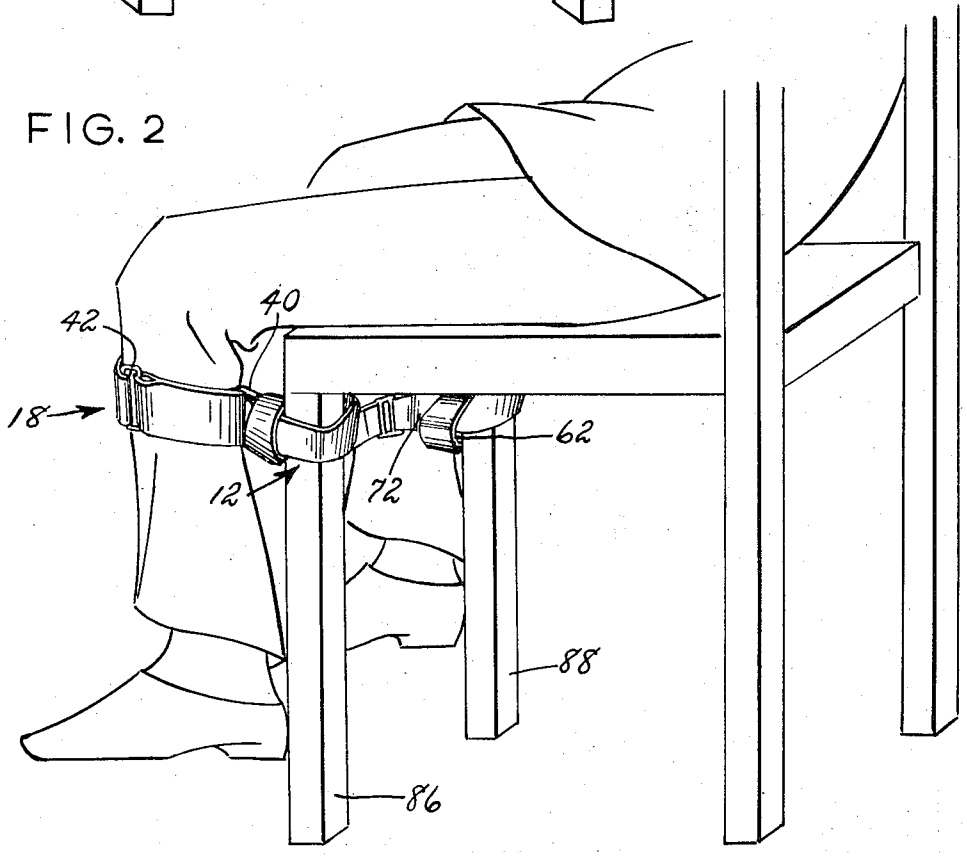


FIG. 3

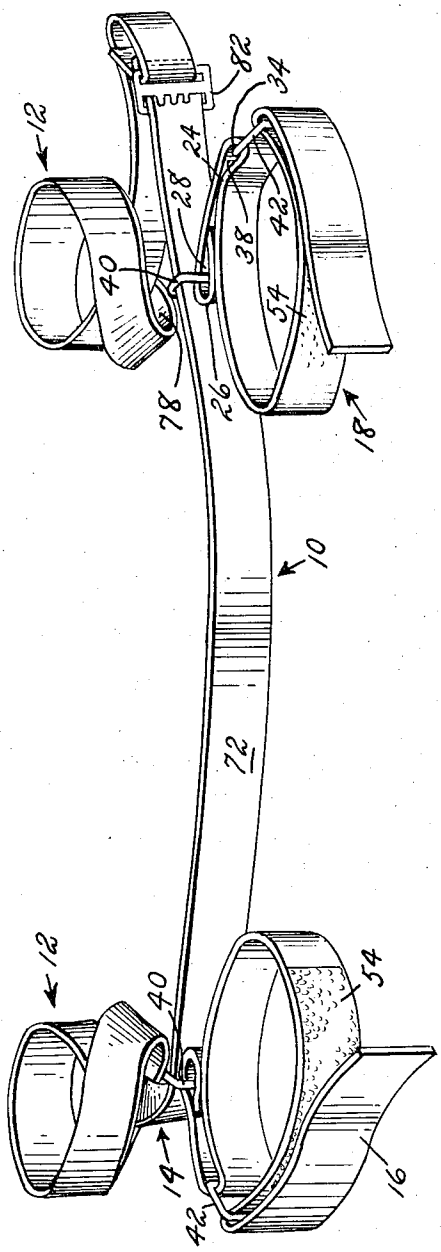


FIG. 5

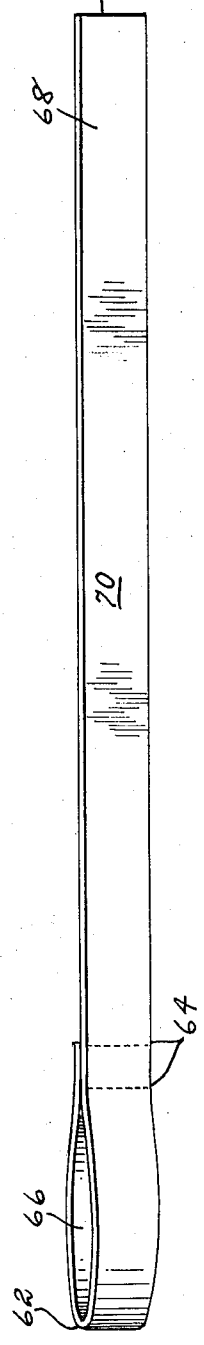


FIG. 6

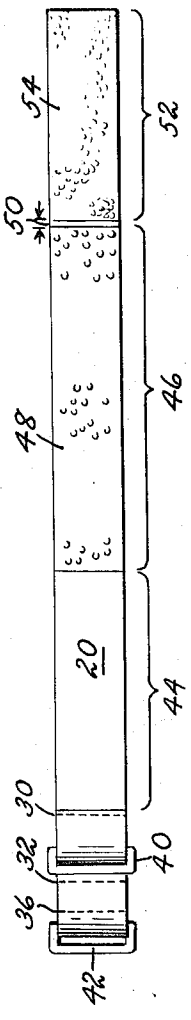


FIG. 4

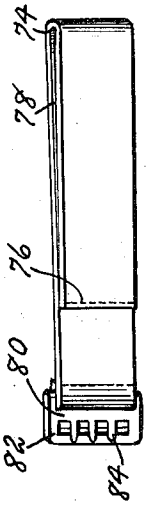
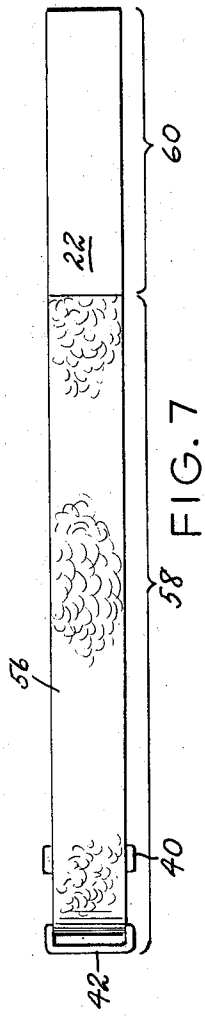


FIG. 7



BODY RESTRAINT

PRIOR ART

The invention is directed to a body restraint and more particularly to a simple, yet improved means, for retaining the seated body of a person with diminished motor control functions, which can be rapidly assembled and disassembled.

A major problem facing those people in institutions caring for persons who have lost a varying degree of ability to control their own muscles, is means to retain them in a sitting position, without the presence of personnel. This problem usually occurs in nursing homes, primarily with geriatric patients.

In the past with this problem has been resolved by strapping the individuals in with a strong restraint either across the lower body or by harnessing the sides. These both lead to serious circulation problems, since as a person starts to move downwardly and forwardly, as, for example, when sliding off a chair, the lower body restraint would immediately cut into the stomach with the consequent restriction of circulation. In the same fashion restraint surrounding the thighs would tend to cut off circulation to the extremities. These restraint techniques are not only harmful to the patient, but they are also somewhat awkward to use and difficult to install.

OBJECTS AND ADVANTAGES

Accordingly, it is among the principal objects of the present invention to provide a new and improved body restraint which may be rapidly and easily secured to the legs of the patient.

Still another object of the present invention is to provide a body restraint which is easily adjustable to accommodate varying leg circumferences.

Still yet another object of the present invention is to provide a body restraint of the character described which may be rapidly secured and detached to a plurality of chairs, thus significantly increasing the usefulness of the restraint, and avoiding the moving of heavy chairs from one location to another.

Still yet a further object of the present invention is to provide an improved body restraint which will not significantly interfere with major body circulation.

Still yet an additional object of the present invention is to provide a body restraint which will not interfere with the freedom of movement of the other limbs or other parts of the body with the exception of the lower legs to a limited degree.

Still yet a further additional object of the present invention is to provide a body restraint of the character described which will be simple and inexpensive to manufacture and yet be durable to a high degree and use.

BRIEF DESCRIPTION OF THE INVENTION

The present invention contemplates a body restraint consisting of substantially identical cuffs which consist of a strap having a closed loop at one end with a lace securement ring to receive a portion of the open end. The open end has Velcro strips on both sides, so that the length of the strip from the ring may be varied. Also secured to the loop is a retaining ring. Thus, the cuffs may be positioned around the leg with the open strips passing through the securement ring and the Velcro allowing variable adjustment to accommodate the circumference of the lower leg. The cuffs are positioned just below the knee and above the belly of the calf.

The anchoring means to the chair consists of first and second straps. The first strap has a closed loop at one end and is longer than the second strap, basically ending in a tongue. The second strap is significantly shorter and also has a closed loop at one end. At the free end, however, there is a standard buckle with fingers. The first and second straps are secured to chair legs by passing the free ends around the chair leg and then through the closed loop. The tongue of the first strap is then passed through the retaining rings of the cuffs and is secured to the second strap by means of the buckle in a well known manner. The length of the material of the first strap together with the length in the second strap is adjusted to accommodate the desired limited movement of the lower legs of the patient. It is readily seen that if a patient starts to slide downwardly and forwardly this additional play will allow a slight amount of movement and then it will firmly retain the lower legs and prevent them from moving forward. In this position, the retaining force is transmitted to the frame of the patient, effectively restraining the patient in a desired upright position. The patient can then remain in a strapped position and until someone comes to observe him or he may signal someone for assistance.

The above description objects of the present invention will become apparent from a reading of the following description taken with reference to the accompanying drawings, wherein:

FIG. 1 is a prospective view of a patient properly seated in a chair with the body restraint secured to his lower legs, and allowing limited freedom of movement of the lower legs;

FIG. 2 is a view similar to FIG. 1, showing the body restraint preventing further movement of the patient who has started to slide off a chair;

FIG. 3 is a prospective view of the invention, not secured to chair legs;

FIG. 4 is a prospective view of the second strap of the ankling means;

FIG. 5 is the prospective view of the first strap of the ankling means;

FIG. 6 is a side elevational view of a cuff; and

FIG. 7 is a reverse side elevational view of the cuff.

Referring in detail to the drawings, and particularly to FIG. 3, there is shown a body restraint to the ten basically comprising a first anchoring strap **12**, a second anchoring strap **14**, a right calf cuff **16**, and a left calf cuff **18**.

Turning in detail to the cuffs and in particular to FIGS. **3, 6,** and **7**, the simplified construction becomes rapidly apparent. The cuffs consist of a strip of webbed material, such as cotton or nylon webbing which, for purposes of this case, will be defined via an outer surface **20** and an inner surface **22**. As best seen in FIG. **3**, the strip is reversed at **24** and reversed again at **26** to form a loop **28**. The loop is further formed by stitching **30,32**. The stripping is then doubled over again at **34** and joined back to itself as at **36** to form another closed loop **38**. Within the closed loop **28** is positioned a retaining ring **40**. Within the loop **38** is positioned a leg securement ring **42**. The rings may be continuous and may be positioned within the stripping before the stiching is completed. Following the rings there exists a portion **44** on the outer surface **20** of the strip which is basically unencumbered. Then there exists a section

46 to which is secured Velcro hook stripping **48.** The hook stripping ends with a short section **50** of unencumbered stripping and then the remaining portion **52** of the cuff is covered with Velcro fabric stripping **54.**

The reverse side of the cuff (FIG. 7) contains padding **56** over substantial portion **58** of its length. The purpose of the padding is to make the wearing of the cuffs comfortable to the patient and thus is designed to extend over substantially the entire inner exposed portion of the cuff. The remaining portion **60** of the cuff consists of unencumbered stripping. The padding and the Velcro strips may be joined to the strip by any convenient means, such as stitching, glue, etc.

The anchoring means includes a first anchoring strap **12** (FIG. 5) in which one end of the strap is doubled over as at **62** with the end being placed against the strip and secured thereto by stitching as at **64** to form a closed loop **66.** This strap is somewhat elongated and is entirely unencumbered throughout the length thereof, ending in an extended tongue portion **68.**

The strap is further defined by an inner surface **70** and an outer surface **72** culminating in a leading edge **74.**

As best seen in FIG. **4,** the second anchoring strap **14** is significantly shorter than the first, and it is doubled over as at **74** and against the strip and joined thereto by a line of stitching as at **76** to form a closed loop **78.** The other end **80** of the strap carried a buckle **82** having sharpened fingers **84.** The buckle is well known and for example, can be purchased from L. LAUFFER & CO., 50 West 29th Street, New York, N.Y. 10001, No. 88 Buckle.

It is very obvious as to the ease in which the unit can be secured to the front legs **86, 88** of chair **90** (FIGS. **1, 2**).

Commencing with the first anchoring strap **12,** the free end **68** is wrapped around the leg **86** and then passed through the closed loop **66.** The forward end **80** of the second anchoring strap **14** is passed around the leg **88** and then passed through the loop **78** in the same manner.

The left and right cuff **16, 18** are then secured to the legs of the patient, with the padded material **56** being on the inside, and the forward end **52** being passed through the securement ring **34.** The Velcro strips are then facing each other and depending upon the positioning of the fabric strip against the hook strips, the circumference of the cuff may be varied in the obvious manner.

The same procedure is exactly the same for the other cuff. The retaining rings **40** are directed to the rear of the calf with the cuffs being positioned just under the knee and above the belly of the calf muscles. The free end or the tongue **68** of the first anchoring strap **12** is then passed through the retaining rings of both of the cuffs, and then is secured to the buckle **82** via the prongs **84** in the well known manner. The point of connection of the two straps are left to the discretion of the person securing the straps. Generally, there is sufficient length left in the first anchoring strap, when combined with the length in the second anchoring strap to allow a relative limited movement of the lower legs of the patient. This is illustrated in FIG. **1,** when the patient is in the normal sitting position.

However, should the patient begin to slide downwardly and forwardly, this extra material is used up and the retaining rings then allow forward movement until there is no more play left. At that point, there is a substantially rigid force being transmitted from the lengths of the chairs through the anchoring straps and the retaining means, against the lower legs. This restrains the body of the patient and prevents further downward and forward movement. This opposing force is transmitted to the frame of the patient.

It is obvious that the only restraints on the body on the outside of the forward portion of the lower leg, and the circulation that may be limited is of a minor nature, since none of the major arteries and veins going to the lower legs are involved. In a similar manner, no other major circulation deterioration can occur, since no other parts of the body are involved.

The restraints also can be used in conjunction with chest or lap restrains, as described in the prior art. The use of the invention prevents excessive pressure put on the abdominal area or across the chest, when the patient slides forward.

Since the restraint only acts on the lower legs, the remaining portion of the body, and the upper limbs are capable of being moved, to the limited extent of which the patient has the capacity. The patient can either wait until an attendant comes to check him or the patient can signal an attendant for assistance.

It is readily obvious that to disassemble the restraint the buckle is loosened and the straps are removed. The cuffs then can easily be taken off the legs of the user by simply separating the Velcro strips. In a like manner the anchoring straps may simply be removed by passing the tongues outwardly through the closed loops. The straps can then be transported to any other chair much more easily than a chair can be moved. In fact, if a patient is to be moved to another chair, the cuffs can be left on the patient's lower legs and the anchoring straps can be easily removed.

While there has been described and illustrated a preferred embodiment of the present invention, it is apparent that numerous alterations, omissions and additions may be made without departing from the spirit thereof.

The embodiment of the invention which an exclusive property of privilage is claimed is defined as follows:

1. A seat and body restraint device for a person having diminished control of motor functions while sitting, comprising:

a chair including a pair of laterally spaced front legs; anchoring means detachably secured to and extending between said chair front legs at the upper parts of said legs;

a pair of cuffs, each cuff having variably detachable securement means to change the circumference of the respective cuff to accommodate different sizes of lower legs; and

retaining means secured to each cuff independent of the other cuff, and slidably receiving the anchoring means, the anchoring means being variably adjustable to allow limited movement of the lower legs, but yet to restrain the body of a person, should the person slide downwardly and forwardly on the chair.

2. The device according to claim **1,** each cuff including a strap, detachably adjustable securement means at one end of the strap, and means at the other end of the strap for receiving the securement means for variable passage therethrough, allowing adjustment of the length of the strap in accordance with the width of the lower legs of the person.

3. The device according to claim 1, the anchoring means including a first strap having a closed loop at one end, a second strap having a closed loop at one end and means at the other end to cooperate with the other end of the first strap for detachable engagement; the straps being placed around the legs of the chair and then passed through the closed loops to anchor the straps thereto, the straps passing through the retaining means prior to their being joined.

4. The device according to claim 3, each cuff including a strap, detachably adjustable securement means at one end of the strap, and means at the other end of the strap for receiving the securement means for variable passage therethrough, allowing adjustment of the length of the strap in accordance with the width of the lower legs of the person.

5. The device according to claim 3, the securement means being a buckle.

6. The device according to claim 4, the means being a buckle.

7. The device according to claim 2, the variably detachable securement means being Velcro stripping.

8. The device according to claim 4, the variably detachable securement means being Velcro stripping.

9. The device according to claim 1, each retaining means being a closed loop secured to the respective cuff, the anchoring means slidably passing through the closed loop.

10. The device according to claim 2, each retaining means being a closed loop secured to the respective cuff, the anchoring means slidably passing through the closed loop.

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