Nov. 2, 1943. E. J. SWEETLAND 2,333,346

RESTRAINING MEANS

Filed Nov. 24, 1941

FIG_1_

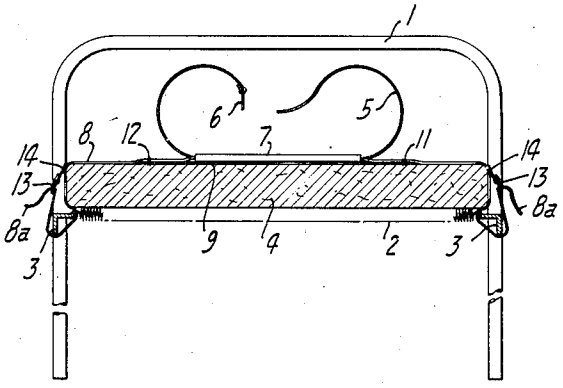


FIG_4_

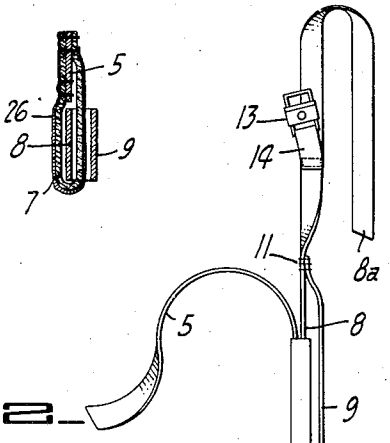


FIG_3_

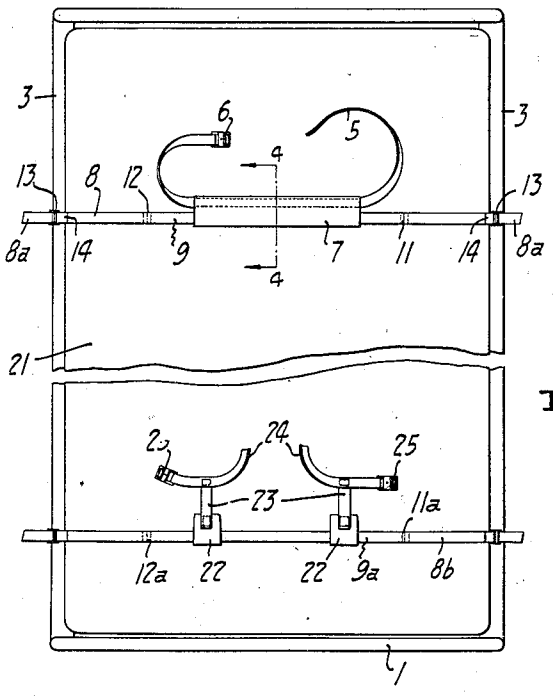


FIG_2_

FIG_5_

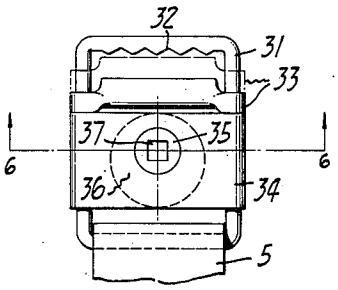


FIG_7_

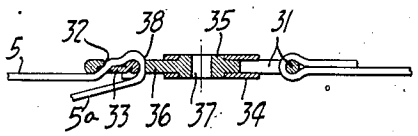
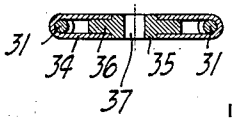


FIG_6_



INVENTOR

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RESTRAINING MEANS

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2 Claims. (Cl. 128—135)

This invention relates to restraining means for use in hospitals and more particularly is for use as a safety measure in preventing patients from climbing or falling out of beds.

It is the principal object of my invention to provide restraining means which is effective in restraining the patient from getting or falling out of bed, but which at the same time is comfortable and allows a considerable amount of freedom of movement.

Another object is to provide in combination with other restraining means a buckle which may be locked if desired but which may effectively be used as an ordinary buckle when locking is not required.

My restraining belt is designed to fit loosely so the patient can turn his body within the belt. Ordinary friction buckles do not hold securely except when there is a tension on the strap upon which they are used, and they are not therefore well adapted to my purpose because I prefer to have the belt loose around the patient's body so he can turn his body within the belt. It is therefore an object of my invention to provide a buckle, in combination with a belt, which is so arranged and constructed that it holds the belt securely without slipping even when the belt is loose.

Referring to the drawing:

Figure 1 shows a transverse cross-section of a hospital bed, such parts of the same being omitted as are not necessary for purposes of illustration, the bed being equipped with one form of my restraining device.

Figure 2 shows the restraining apparatus removed from the bed.

Figure 3 shows a plan view of a hospital bed and is intended to illustrate the same with all bed clothing removed above the lower sheet which covers the mattress.

Figure 4 is a cross-section on the line 4—4 of Fig. 3 showing the tunnel-loop which provides for a moderate amount of sidewise movement of the patient.

Figure 5 is a plan view of the lock buckle.

Figure 6 is a section on the line 6—6 of Fig. 5.

Figure 7 is a longitudinal cross-section through the buckle showing the locking means and the location of the web which is in service with the buckle.

Referring to the more specific details, and particularly to Figures 1, 2 and 3, numeral 1 represents the outline of a hospital bed frame which is supplied with mattress springs 2 which are attached to the longitudinal angle pieces of the mattress frame 3. The mattress is indicated by the numeral 4 and this is assumed to be covered by any necessary bed clothing including the sheet upon which the patient is to recline. 5 represents a belt provided with a buckle 6 which is of the type illustrated in detail in Figures 5, 6 and 7. 7 is a tunnel-loop which surrounds the cross strap 8 and is limited in its travel by the web member 9 which is stitched to the cross member 8 only at its ends as indicated at 11 and 12. At either end of the cross member 8 is a buckle 13 which is preferably, but not necessarily, of the type illustrated in Figures 5, 6 and 7. The buckles 13 are secured to the cross member 8 by means of short pieces of webbing as shown at 14. The free ends of the cross member 8 are designated by the numeral 8a and these may be of any suitable length depending upon the type of bed to be used. I have shown these tightened around the angles of the mattress frame 3 as a means of holding the cross member 8 in a taut position but they may be secured to any convenient portion of the bed such as the side boards or side bars of an ordinary bed.

Referring to Fig. 3 the numeral 21 refers to a sheet-covered mattress, and the cross member 8 is illustrated in about the position of the waistline of a patient occupying the bed. This is secured in place as illustrated in Fig. 1. Another cross member 8b is illustrated below the one just described. This is illustrative of the method I employ for applying restraints to the ankles or to the wrists. The member 8b is secured to the bed in the same manner as the member 8 and it is likewise provided with an underlying web member 9a which cannot be seen in this view. This web member 9a is secured at its ends by the stitching 11a and 12a and is arranged as shown in Fig. 2. In this case a pair of tunnel-loops 22 encircle the member 8b upon which they are free to slide within the limits permitted by the stitched ends 11a and 12a. Tightly secured to the loops 22 are extension members made of webbing or other flexible material 23 and the flexible cuffs 24 are secured to the members 23. These cuffs may be secured about the ankles or wrists, depending upon the portion of the bed to which the cross member 8b is secured. Each of the cuffs is provided with a buckle 25 which is preferably the type illustrated in Figures 5, 6 and 7. Obviously cuff members with the extensions 23 and cuffs 24 may be used in conjunction with belt 5 on cross strap 8 if desired.

Figure 4 is a cross-section on the line 4—4 of Fig. 3 and shows in cross-section the cross member 8 and the lower web member 9 while the cross-section of the belt to which the loop is secured is shown at 5. The loop proper is shown in cross-section at 7 and a layer of padding such as a thickness or two of Canton flannel, which protects the patient's back, is shown at 26. It will be noted that the tunnel-loop member 7 is securely stitched to the belt and it prevents the belt from shifting in a manner that would permit the buckle to get underneath the patient and thus cause discomfort. However, the purposes of my invention may be carried out to some extent without stitching the tunnel to the belt, but permitting the belt to slide freely through the tunnel. In any event, it is important that the tunnel be restrained by any convenient means, such as the web member 9, so that the patient is prevented from getting over the edge of the bed.

Referring to Fig. 5 which shows the buckle in plan view, 31 is the frame of the buckle which is provided with notches as shown at 32 to assist in gripping the web which passes through it. The cross member 33 is slidably mounted on the frame of the buckle and takes the position indicated by the dotted lines when the buckle is in locked position. A casing member 34 is secured to the frame member by any convenient means as indicated in Fig. 6 and is provided with an aperture on each side to accommodate the circular hubs 35 on either side of the cam 36. A square hole 37 is formed in the cam 36 to admit a key. While I have illustrated a square key-hole for simplicity, it is obvious that this may be adapted to any form of key it might be desired to use. The buckle is shown in unlocked position in Fig. 5 and in locked position in Fig. 7. In this figure the numeral 5 represents the free end of the belt and 5a the part of the belt that encircles the patient's body. If it is desired to lock the buckle the cam or eccentric 36 is turned, which action causes the lobe of the cam to bear against the web as indicated at 38. This holds the cross member 33 in the position indicated in Fig. 7 and the strap or webbing which forms the belt 5 cannot be loosened until the buckle is unlocked by turning the cam.

The method of using the apparatus is as follows: The cross strap member is stretched tightly across the bed as shown in Figures 1 and 3. The patient is then placed in bed and his waist is encircled by the belt which is applied quite loosely so that the patient may turn his body freely within the belt, while the belt remains substantially in stationary position. As was previously explained, the nature of the buckle used in combination with the belt and which is described in detail herein, is such that it holds the belt securely even though the belt is not under tension. This arrangement, coupled with the lateral movement which is permitted by the tunnel-loop which is slidably secured to the cross strap 8, permits the patient to move about comfortably, and he is restrained only in the event he might get dangerously close to the edge of the bed, from which he might fall, or in the event he deliberately tries to get out of bed.

If restraint of the legs or arms is required, then the cuff members 24 are applied to the wrists or ankles or both as the case may indicate.

The lock buckles herein described, which may be used on the cuff members for the restraint of arms or legs, as well as on the belt, have the advantage that they may be used as ordinary friction buckles when locking is not required, but may be securely locked upon an obstreperous patient who may otherwise require the use of the less convenient and less humane restraining devices commonly used, such as strait-jackets, and the like.

Where the term "belt" is used herein it is intended to mean a strap of any suitable material to encircle a part of the body; it may encircle the waist, chest, the wrists, ankles or other part of the body.

I claim:

1. Restraining means comprising a flexible cross member to be placed across the reclining surface of a bed; means to secure said cross member to the sides of the bed; a belt to encircle the body of a person; a piece of fabric to secure said belt to said cross member; said fabric being folded and secured to said belt to form a loop along one edge of said belt to receive said cross member in slidable engagement with said belt; said belt and cross member being held in edge-to-edge relation with each other by said loop when in operative position; means to limit the sliding movement of said loop on said cross member.

2. Means to restrain a patient in bed comprising a belt to encircle the body of said patient and a cross member to lie flat upon the reclining surface of a bed; means to secure said cross member to the sides of said bed; means to retain the back of said belt and said cross member in slidable relation to each other, said means including a sleeve to hold said belt and cross member parallel and in edge-to-edge relation with each other; a strap of greater length than said sleeve secured to said cross member at the ends of said strap to limit the travel of said sleeve, and means to secure said belt around the body of a patient.

ERNEST J. SWEETLAND.