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Ennis

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[54] **RESILIENT HARNESS DEVICE FOR A WALKING CAST**

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[52] **U.S. Cl.** ..... **128/80 G**

[51] **Int. Cl.** **A61f 3/00**

[58] **Field of Search** 128/80, 94, 83, 83.5

[56] **References Cited**

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[57] **ABSTRACT**

A shoulder supported, resilient harness device for use with a walking cast to facilitate movement and reduce fatigue of the injured leg incorporates, in linked sequence, a shoulder strap, a lead strap, a resilient member and a foot band. The resilient member is, preferably, a pull spring having a pull tension corresponding to at least about the weight of the cast. The shoulder strap and foot band are, preferably, adjustable with respect to length and the means linking the resilient member to the lead strap and the foot band include, preferably, swivel-type connectors.

9 Claims, 3 Drawing Figures

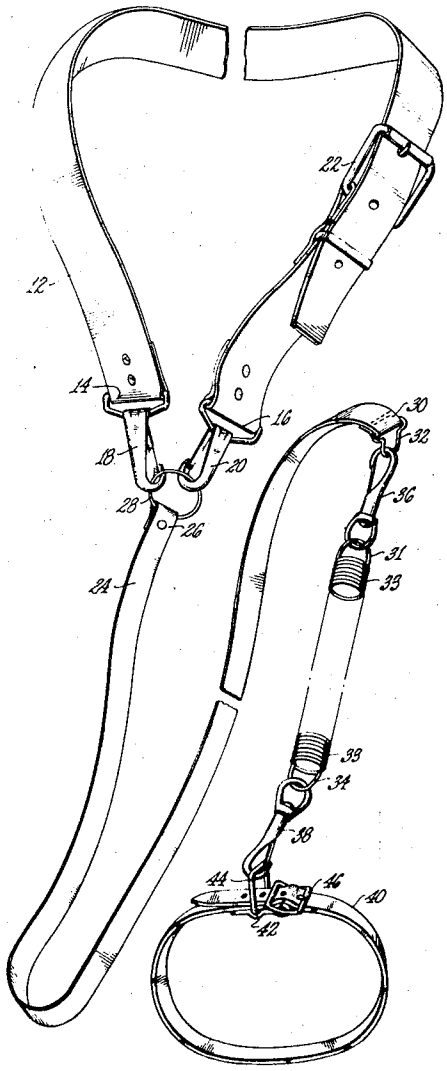


FIG. 1.

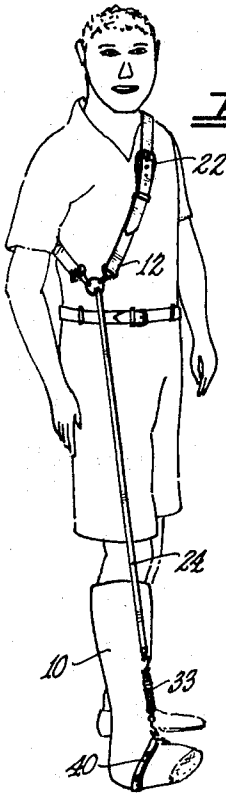


FIG. 3.

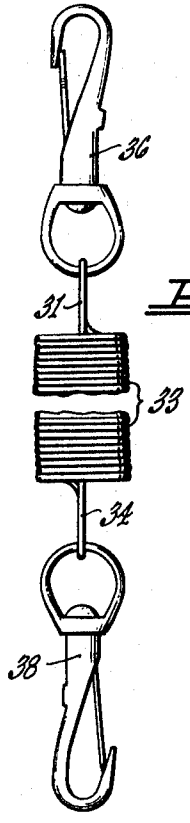
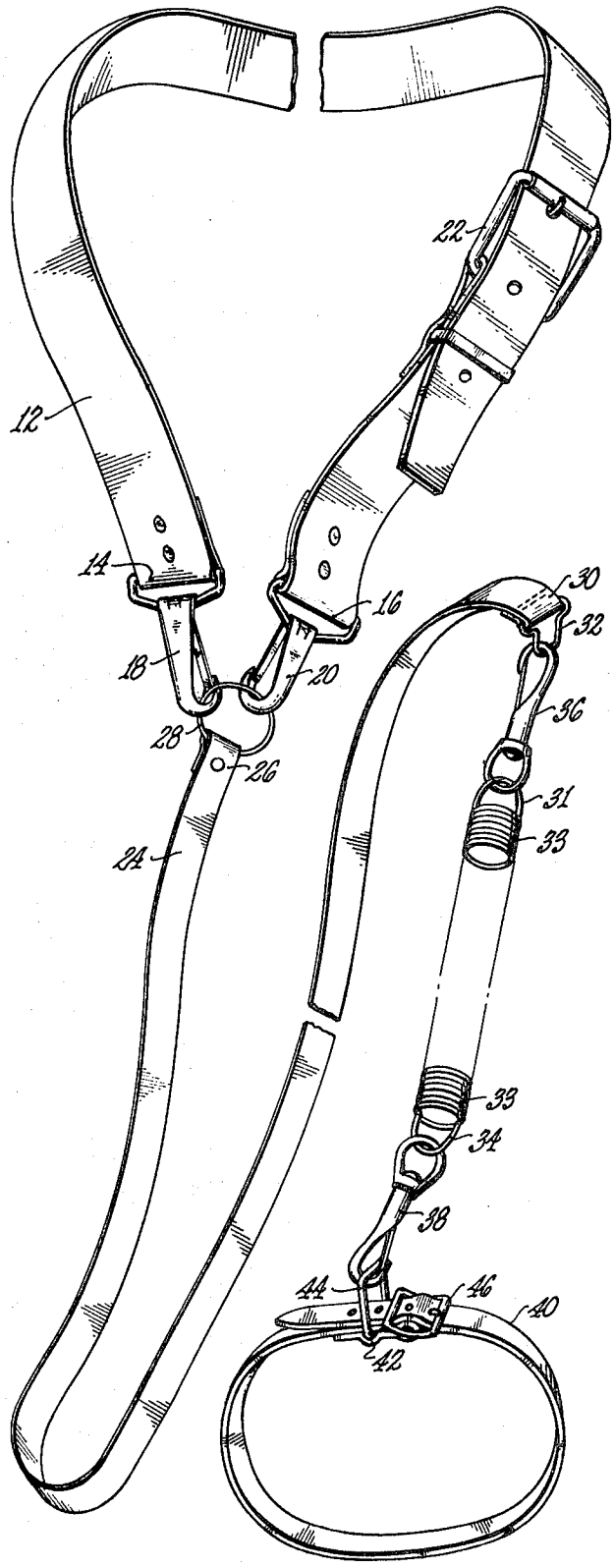


FIG. 2.



RESILIENT HARNESS DEVICE FOR A WALKING CAST

BACKGROUND OF THE INVENTION

The invention relates to a resilient harness device and, more particularly, to a shoulder supported, resilient harness device especially adapted to facilitate movement of an individual's leg which has been fitted with a walking cast.

A cast is applied to a person's leg following treatment of a leg injury such as a broken bone or torn muscle or ligament in order to maintain the leg in an immobile state during the healing process. When it has been determined that the injury has sufficiently healed or has been sufficiently treated to permit weight to be placed on the foot of the injured leg, a rubber pad is placed on the bottom of the cast and the combination is referred to as a walking cast.

The weight and bulk of the walking cast tend to impair balance and cause fatigue. Thus, it would be advantageous to provide an economical and easy to use appliance for use with a walking cast which facilitates balance and, at the same time, minimizes fatigue resulting from the weight of the cast.

SUMMARY OF THE INVENTION

In accordance with this invention, there is provided a new and improved shoulder supported, resilient harness device for a walking cast which includes, in linked, sequential combination, a shoulder strap, a lead strap, a resilient member and a foot band. First linking means connect the shoulder strap to the upper end of the lead strap. Second linking means connect the lower end of the lead strap to the upper end of the resilient member and third linking means connect the lower end of the resilient member to the foot band.

The resilient member has a pull tension corresponding to at least about the weight of the cast. The shoulder strap and foot band are, preferably, adjustable as to length and the second and third linking means comprise, preferably, swivel-type connectors.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of a patient employing the shoulder supported, resilient harness device of the invention.

FIG. 2 is a fragmentary, perspective view of the resilient harness device.

FIG. 3 is a fragmentary, perspective view of the resilient member and the adjoining swivel-type connector.

DETAILED DESCRIPTION

Referring now to the drawing, the patient illustrated in FIG. 1, whose right leg has been fitted with a walking cast **10**, is provided with a shoulder supported, resilient harness device of this invention to facilitate movement of the right leg and reduce fatigue brought about by the weight of the cast.

The resilient harness device includes a shoulder strap **12** having first and second terminal ends **14, 16** in the form of riveted loops which secure first and second loop eye spring snap connectors **18, 20.** A tongue and buckle assembly **22** is advantageously incorporated into the shoulder strap so that the length of the strap may be appropriately adjusted to accommodate the patient.

A lead strap **24** is provided with a first riveted loop **26** at its upper end which secures a first lead strap holding member **28.** The lead strap is also provided with a second riveted loop **30** at its lower end which secures a second lead strap holding member **32.**

The terminal ends of the shoulder strap are linked to the upper end of the lead strap by the loop eye spring snap connectors **18, 20** which releasably engage the first lead strap holding member **28.**

A resilient member shown in the drawing in the form of a pull spring **33** is provided with a first loop **31** at its upper end and a second loop **34** at its lower end. The first loop is secured to the eye of a first swivel eye spring snap connector **36** and the second loop is secured to the eye of a second swivel eye spring snap connector **38.** The upper end of the pull spring is linked to the lower end of the lead strap by the first swivel eye spring snap connector **36** which releasably engages the second lead strap holding member **32.**

A foot band **40** is provided with a riveted loop **42** which secures a foot band holding member **44.** The foot band advantageously includes a tongue and buckle assembly **46** for adjusting the size of the band to accommodate the portion of the cast which is in engagement with the foot of the patient. The lower end of the pull spring is linked to the foot band by the second swivel eye spring snap connector **38** which releasably engages the foot band holding member **44.**

The pull spring should have a pull tension corresponding to at least about the weight of the walking cast in order to effectively accommodate the weight of the cast during the lift portion of the patient's ambulatory cycle. Preferably, the pull tension of the pull spring is in excess of the weight of the cast. However, in order to minimize the load on the shoulder, the pull tension of the spring should not be in excess of about 25 percent of the weight of the cast.

Although a closed coil, pull spring is preferred as the resilient member, it is apparent, of course, that an elastomer having the requisite pull tension could also be employed as the resilient member.

The resilient harness device is used by inserting the foot of the leg fitted with a walking cast into the foot band of the device and passing the shoulder strap over the shoulder opposite to the injured leg and under the arm adjacent to that leg.

The shoulder supported, resilient harness device facilitates leg movement and reduces leg fatigue by transferring the weight of the cast during the left portion of the ambulatory cycle from the injured leg to the patient's shoulder.

While in the foregoing description and accompanying drawing there has been shown and described the preferred embodiment of this invention, it will be understood, of course, that minor changes may be made in the details of construction as well as in the combination and arrangement of parts without departing from the spirit and scope of the invention as claimed.

I claim:

1. A shoulder supported, resilient harness device for a walking cast comprising:

a shoulder strap, said shoulder strap having a first terminal end and a second terminal end,

a lead strap having an upper end and a lower end,

first linking means connecting each of said first and second terminal ends of the shoulder strap to the upper end of said lead strap,

a resilient member having an upper end and a lower end,

a second linking means connecting the upper end of said resilient member to the lower end of said lead strap,

a foot band, and

third linking means connecting the lower end of said resilient member to said foot band.

2. A device in accordance with claim **1** wherein the resilient member has a pull tension corresponding to at least about the weight of the cast.

3. A device in accordance with claim **1** wherein the resilient member has a pull tension from about the weight of the cast to about 25 percent in excess of the weight of the cast.

4. A device in accordance with claim **4** wherein the resilient member is a pull spring.

5. A device in accordance with claim **2** wherein the first linking means comprises a first connector secured to the first terminal end of said shoulder strap and a second connector secured to the second terminal end of said shoulder strap and each of said first and second connectors being in releasable engagement with a connector holding member secured to the upper end of said lead strap.

6. A device in accordance with claim **1** wherein the second linking means comprises a swivel connector secured to the upper end of the resilient member and in releasable engagement with a connector holding member secured to the lower end of said lead strap.

7. A device in accordance with claim **1** wherein the third linking means comprises a swivel connector secured to the lower end of the resilient member and in releasable engagement with a connector holding member secured to the foot band.

8. A device in accordance with claim **1** wherein the shoulder strap includes means for adjusting the length of said strap.

9. A device in accordance with claim **1** wherein the foot band includes means for adjusting the length of said band.

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