March 13, 1973 J. J. WALKER ET AL 3,720,206

ANKLE HITCH

Filed Nov. 19, 1971

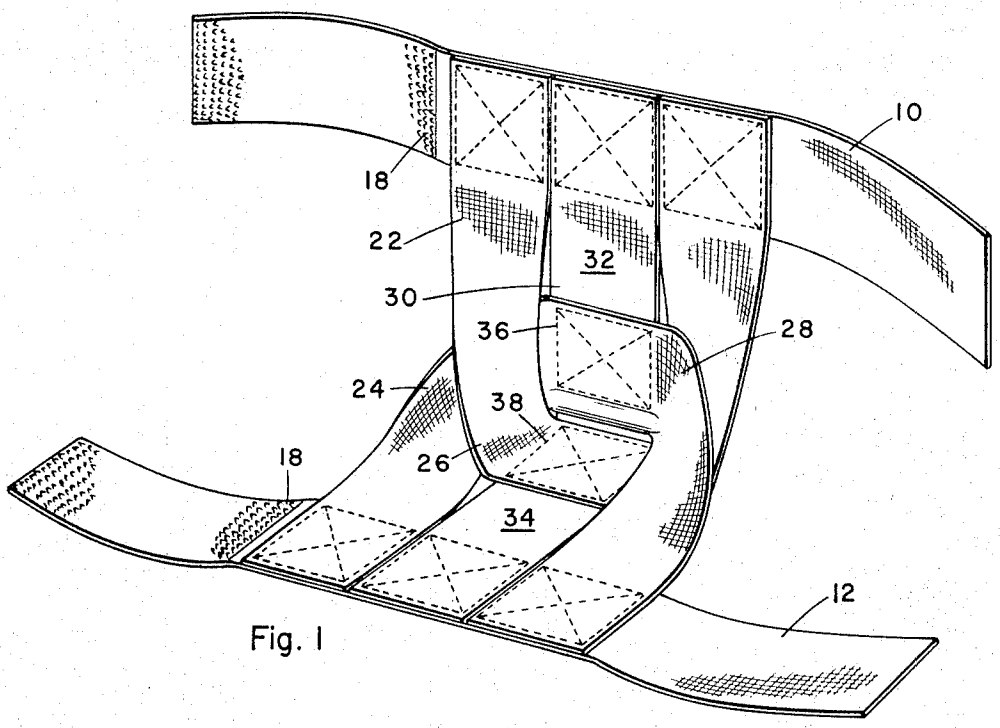


Fig. 1

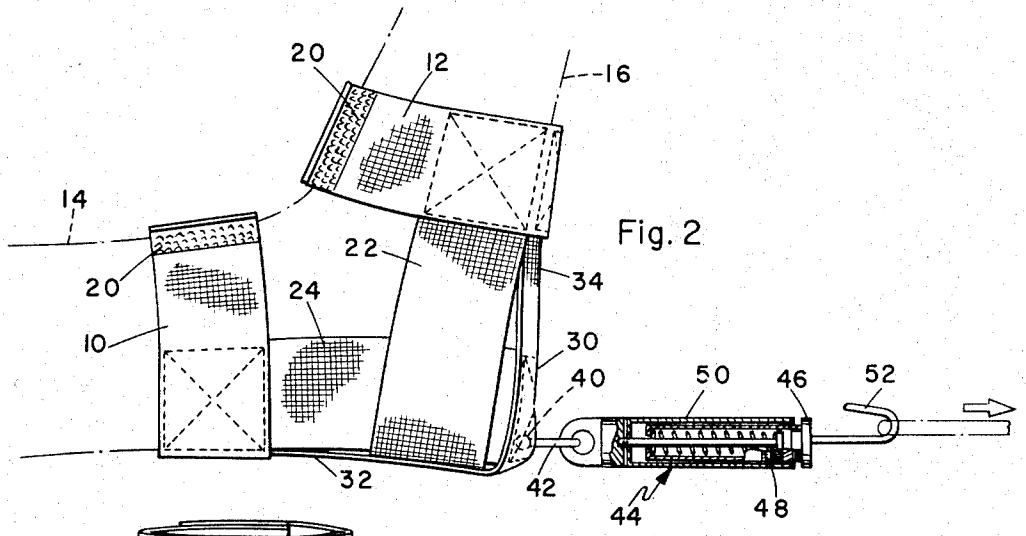


Fig. 2

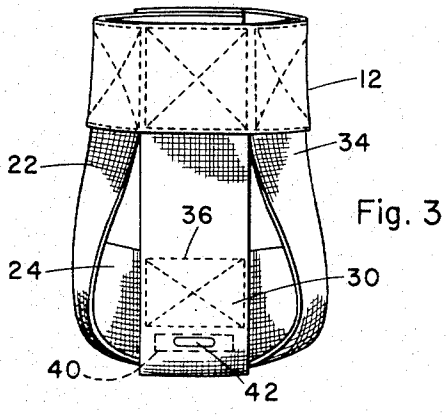


Fig. 3

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United States Patent Office 3,720,206
Patented Mar. 13, 1973

3,720,206

ANKLE HITCH

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Filed Nov. 19, 1971, Ser. No. 200,418
Int. Cl. A61f 5/04
U.S. Cl. 128—84 R 8 Claims

ABSTRACT OF THE DISCLOSURE

This article, commonly called an ankle hitch is an accessory in lower limb traction splint equipment for attachment on the foot and ankle and enabling securement of the actual tensioning means with a reasonably accurate measurement of the tension applied. The article is constructed so that it can scarcely be improperly applied since it is reversible as to foot and ankle strap attachment with complete non-slip assurance in both positions, a foot-uprighting or lateral support function, and an easily read tensioning scale eliminates guesswork in determining the degree of tension to be applied.

BACKGROUND OF THE INVENTION

Application of tension splints to injured legs is generally accepted step in first aid, ambulance and hospital procedure, primarily to ease pain and to prevent further injury to the injured. Attachment is usually made to the foot and/or ankle and a cable of some nature is used to exert a tension longitudinally of the limb. This tensioning in prior art devices is not easily measured and the foot is often not laterally supported for maximum pain relief and assurance against further injury as, for example, during transport of the injured person. There is a need for a device of this nature with built-in safeguards against improper use, it being recalled that such items are ordinarily applied and used under conditions of urgency and possibly great disorder.

SUMMARY OF THE INVENTION

As claimed this invention is an ankle and/or foot hitch comprising a pair of similar bands capable of encircling, overlapping attachment around the ankle and the instep portion of the foot and a pair of straps, which can be quite similar to the bands, each having both ends stitched or otherwise connected to one or the other of the bands to form loops, and the loops are interchanged to define a single pocket for the heel. The straps are constructed from webbing having a considerable degree of form retention so that the pocket provides lateral support tending to maintain the heel upright. Since the straps are similar and the bands are also similar, and due to the simple interengagement of the loops, the item is reversible so that either band may be used on the ankle and the pocket will be properly oriented. This feature tends to prevent misuse, and another safety feature resides in the easily read tension gauge attached to the item and securable to the tensioning cable, this gauge being readable equally well when the item is in either of the above mentioned alternative positions.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of the ankle hitch in open position;

FIG. 2 is a side elevation view of the angle hitch attached to an ankle and foot with a tension gage connected; and

FIG. 3 is a view as taken from the right hand side of FIG. 2, with the tension gage omitted.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

As represented in the drawing, the item has two bands **10** and **12** which may be identical. These bands are constructed of strong webbing material, ordinarily about two inches wide and long enough to encircle either the ankle **14** or instep portion **16** of the injured person's foot and to overlap for attachment as illustrated best in FIG. 2. The bands **10** and **12** are conceived as interchangeable in use but for purposes of this disclosure the band **10** will be considered the ankle band and the band **12** will be considered the instep band. A preferred attachment means is that illustrated, namely, the sheet material sold under the trademark Velcro, sewn on as patches **18** on one pair of end portions of the bands with interengaging patches **20** on the other end portions of the bands. Of course the patches **18** and **20** are dimensioned to correspond with the proportions of the end portions of the bands. This is true of both the ankle band **10** and the instep band **12**.

A pair of similar straps, which for purposes of easy reference may be identified as the first strap **22** and second strap **24**, have both ends of each stitched or otherwise secured generally centrally of the bands **10** and **12**. The straps have interengaging central loops **26** and **28** defining together a heel pocket, the loop **26**, as shown in use, being capable of engaging the underside of the heel, and the loop **28** being capable of engaging the back of the heel, while both loops having considerable inherent stiffness, by reason of being constructed of strong webbing, and others being capable of supporting the heel and gently urging the foot into upright position.

A third strip **30** is secured, as by stitching to and between the loops **26** and **28** for further defining said pocket and as illustrated this third strap **30** may be extended as indicated at **32** and **34** and stitched to the bands for greater reinforcement of the ankle hitch. It is preferred that the ends of the straps **22** and **24** be spaced apart just sufficiently to accept the ends **32** and **34** for maximum integrity of construction as well as neatness, and in this connection it should be noted that said pocket is defined, in the sense of being resiliently but firmly outlined, by a double layer of webbing at the back, on the bottom and on both sides, said back and bottom being further strengthened by stitching the loops to the third strap **30** as at **36** and **38**. The loops are thus held together and oriented but the side portions of the loops are not stitched to each other in order to provide for a desirable degree of adjustment of the pocket in size and to permit some flexibility and also collapsibility of the item into nearly flat form for storage.

Finally, the means for attachments of the item to the tensioning cable, not detailed, comprises a crossbar **40** stitched into position inside the third strap **30** and having a central bow **42**, combined with a novel tension gauge generally indicated at **44**. This gauge is a spring tension gauge wherein the spring biased element **46** is cylindrical so that when pulled outwardly from the casing **50** progressively under greater and greater tension the tension is indicated by colored bands **48** similarly progressively expressed. For example, a tension of about 2.5 lbs. is indicated by a blue band, a tension of 10 lbs. is indicated by a green band, a tension of about 17.5 lbs. is indicated by a yellow band and a red band indicates a dangerously high tension, these markings being quite arbitrary. It will be clear, however, that use of such gauge, readable from all sides, complements the reversible feature as mentioned in the first paragraph of this detailed description, thus providing for greater ease and safety in operation. The type of casing **50** and hook **52** is immaterial to this invention as long as the same is compatible with said reversible feature.

The loops **26** and **28** may be oriented with one entirely inside the other or interlaced as illustrated in FIG. 1, the latter making the item more obviously reversible.

The operation of this invention will be clearly comprehended from the foregoing and it will be clear also that the third strap construction, whether the loops are within each other or interlaced as shown, insures directly central orientation of the tension thus avoiding any tendency to twist the injured limb.

I claim:

1. An ankle hitch for use in applying traction to a fractured leg, said hitch comprising:

a pair of bands, one for placement around the ankle and the other for placement around the instep, said bands having means to fasten together the end portions of the individual straps to hold the straps in place on the ankle and instep;

a pair of straps, one having both ends thereof secured to a substantially central portion of one band, and the other having both ends thereof secured to a substantially central portion of the other band;

said straps being each in the form of a single loop and the loops interengaging and together defining a heel pocket, with one strap extending along the bottom of the pocket, and the other strap extending across the back of the pocket; and

attaching means on said pocket whereby the hitch may be secured to tensioning means.

2. An ankle hitch according to claim **1** wherein said straps are similarly dimensioned and the hitch is reversible in the sense that either of the bands may be used on the ankle with the other band secured about the instep.

3. An ankle hitch according to claim **1** and including a third strap between said loops and further defining the bottom and back of said pocket.

4. An ankle hitch according to claim **3** wherein said attachment means is secured to said third strap, whereby tension is applied to the ankle hitch directly centrally thereof to avoid twisting moments.

5. An ankle hitch according to claim **3** wherein said third strap is continued to and attached to said bands, the ends of said band being spaced apart to accommodate the ends of said third strap, thus further reinforcing the ankle hitch.

6. An ankle hitch according to claim **3** wherein said straps are webs with considerable inherent stiffness, the bottom and back and sides of the pocket each having a double layer of such webbing and providing a considerable degree of lateral support to the foot of the injured person.

7. An ankle hitch according to claim **1** wherein said attaching means includes a tension gauge.

8. An ankle hitch according to claim **7** wherein said gauge is cylindical and graduated and the graduations are easily readable when the hitch is in use with either of said bands encircling the ankle and the other band encircling the instep.

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U.S. Cl. X.R.

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