Feb. 6, 1968 J. C. ABERT ETAL 3,367,547

PACK FRAME AND BACKSTRAP MEANS THEREFOR

Filed Oct. 21, 1966

FIG. 1

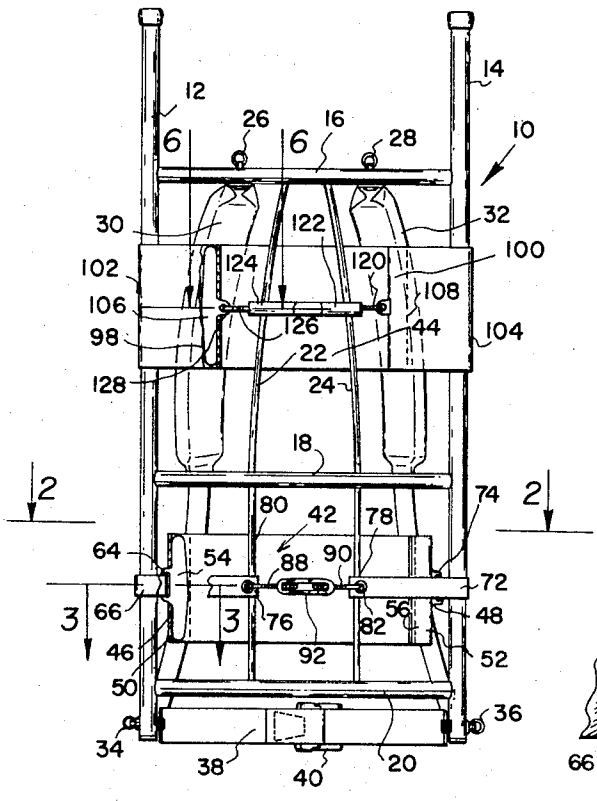


FIG. 4

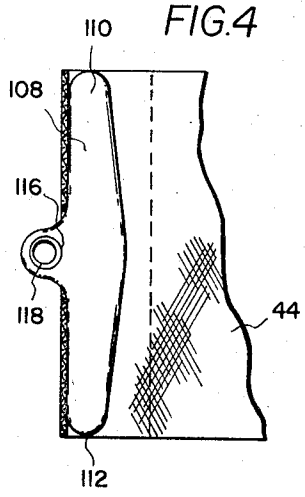


FIG. 5

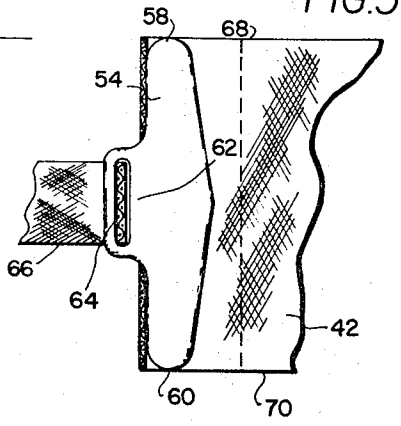
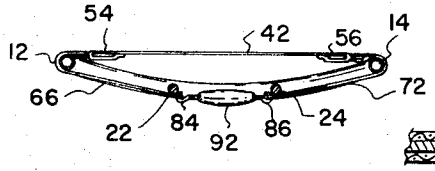


FIG. 2



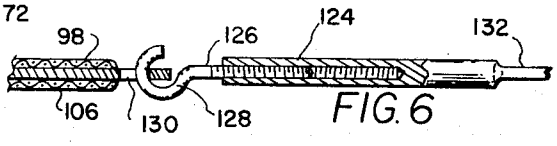


FIG. 6

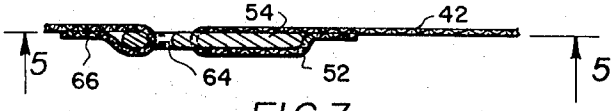
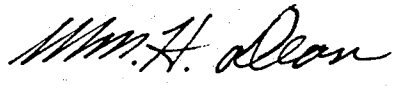


FIG. 3

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PACK FRAME AND BACKSTRAP MEANS THEREFOR

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8 Claims. (Cl. 224—25)

ABSTRACT OF THE DISCLOSURE

A pack frame and backstrap means therefor comprising flexible back engaging strap having opposite ends provided with loop-shaped portions in which substantially rigid T-shaped members are disposed having connection portions at the middle thereof, and wherein turn buckle means is disposed to provide a take up and coupling between the connection portions at opposite ends of the strap for tensioning it relative to the pack frame of the invention.

This invention relates to a pack frame and backstrap means therefor, and more particularly, to a pack frame and backstrap means therefor in which a novel means is provided for securing a back engaging strap to a pack frame and for holding it taut and in conforming relation with the back of a person carrying the frame.

In the construction of prior art pack frames, various means have been provided for holding back engaging straps taut on pack frames.

Many back engaging straps have been held on pack frames by laces and various other devices have been used to secure back engaging straps on pack frames.

In many instances, it has been difficult to adjust back engaging straps to fit or conform with the various portions of a person's back in order to provide a comfortable bearing of back engaging straps thereon, when the pack frame is in carrying position, and variously loaded.

Many prior art patent frames have utilized taut back engaging straps which are commonly provided with front and rear surfaces, which tend to be somewhat rigidly aligned with the vertical axes of the side members of conventional pack frames, and when these back engaging straps of the prior art frames are held sufficiently taut to be retained in proper position, they do not completely conform to portions of a person's back, particularly portions in the hip area which tend to be disposed slightly at an incline angle relative to the vertical and to the axes of the side members of a pack frame.

Accordingly, it is an object of the present invention to provide a novel means for helding back engaging straps on a pack frame in taut comfortable position.

Another object of the invention is to provide a novel pack frame and back strap therefor, wherein means is provided for holding the back engaging strap of the invention is taut condition relative to the frame and, also, adapted to permit pivotal movement of the back engaging strap about a side to side horizontally disposed axis, such that a back engaging strap, in accordance with the invention, may be worn on a lower portion of the frame so as to pivot about a side to side horizontal axis, and conform with portions of the wearer's hips which are at a slightly inclined angle relative to the vertical and to the normally vertical side members of the pack frame of the invention.

Another object of the invention is to provide a novel pack frame and back strap means therefor, in which a back engaging strap of the invention is provided with substantially vertically disposed bars secured to opposite ends of the back engaging straps and wherein the bars are provided with connection portions intermediate their opposite

ends; said connection portions being connected to flexible twistable elements adapted to permit the back engaging strap to pivot about a horizontal side to side axis.

Another object of the invention is to provide a pack frame and back straps therefor having novel turn buckle pickup means.

Another object of the invention is to provide a pack frame and back strap means therefor having novel means for supporting a back engaging strap on a pack frame and for holding the strap taut thereon, while permitting pivotal movement of a strap about a side to side horizontal axis disposed generally intermediate relative to the upper and lower edges of the back engaging strap.

Further objects and advantages of the invention may be apparent from the following specification, appended claims, and accompanying drawings, in which:

FIG. 1 is a rear elevational view of a pack frame and back strap means therefor, showing portions thereof broken away and in section to amplify the illustration;

FIG. 2 is a plan sectional view taken from the line 2—2 of FIG. 1;

FIG. 3 is an enlarged fragmentary plan sectional view taken from the line 3—3 of FIG. 1;

FIG. 4 is an enlarged fragmentary sectional view of one end of the back engaging strap, in accordance with the invention, and showing a connection bar of the invention secured in said one end of said back egaging strap;

FIG. 5 is a view similar to FIG. 4; FIG. 5 being taken from line 5—5 of FIG. 3; and

FIG. 6 is an enlarged fragmentary plan sectional view taken from the line 6—6 of FIG. 1.

In accordance with the present invention, a pack frame 10 is provided with horizontally spaced apart substantially vertical members 12 and 14. These members 12 and 14 are interconnected by conventional cross members 16, 18 and 20.

Substantially vertical sack supporting bars 22 and 24 interconnect the bars 16, 18 and 20. These structures are all substantially conventional.

Connected to the upper bar 16 by pivotal bearing means 26 and 28 are conventional shoulder engaging straps 30 and 32. These straps 30 and 32 are pivotally connected at their lower ends to respective lower ends of the side members 12 and 14 by means of pivotal connections 34 and 36, all of this structure being substantially conventional.

A hip engaging belt 38 is provided with a buckle 40 adapted to be buckled in the front of a person's hips for holding the pack frame forwardly and to cause back engaging straps 42 and 44 of the invention to bear against the back of the wearer of the pack frame 10.

The belt 38 is substantially conventional.

In accordance with the present invention, the back engaging strap 42, as shown in FIGS. 1, 2, 3 and 5 of the drawings, is disposed to engage the upper rear of a person's hips at the back of the wearer of the frame 10.

This strap 42 is preferably of flexible material and is provided with opposite ends 46 and 48 having loops 50 and 52 in said opposite ends, disposed in said loops are respective bars 54 and 56. These bars 54 and 56 are similar, accordingly, reference is made to the showing of the bar 54, illustrated in FIG. 5. This bar 54 is a vertically disposed bar having respective upper and lower ends 58 and 60. An intermediate portion 62 of the bar is provided with a strap receiving slot 64, this slot being disposed vertically and adapted to retain a strap 66, generally referred to herein as a holding means, while the slot 64 being referred to as a connection portion of the bar 54. This connection portion is located intermediate the upper and lower ends 58 and 60, and also intermediate upper and lower edges 68 and 70 of the respective strap 42.

A strap 72 similar to the strap 66 is secured to a connection portion 74 of the bar 56.

Opposite ends 76 and 78 of the straps 66 and 72 are spaced apart at the back of the frame and overlie the bars 22 and 24, as shown in FIGS. 1 and 2 of the drawings. These ends 76 and 78 are provided with metal eyelets 80 and 82 through which hooks 84 and 86 are extended. These hooks 84 and 86 are provided with screw threaded shanks 88 and 90 having oppositely directed screw threads screw threaded in a turn buckle 92 which is adapted to tension the straps 66 and 72, and also the back strap 42 for holding it taut. The straps 66 and 72 are preferably made of nylon fabric and are twistable and therefore deflectable about a side to side horizontal axis to permit the strap 42 to be deflected into an inclined position relative to the vertical and to conform with incline portions at the lower rear of a person's back, as hereinbefore described.

The back engaging strap 44 is of flexible material preferably nylon fabric and this strap is provided with opposite end portions 98 and 100 disposed generally in vertical spaced relationship to each other at the rear of the pack frame of the invention. The strap 44 being wrapped around the side members 12 and 14 at 102 and 104. The opposite ends 98 and 100 are formed into sewn vertical loops in which bar members 106 and 108 are disposed. These members 106 and 108 are similar, therefore the member 108 will be described in detail as shown in FIG. 4 of the drawings. This bar member 108 is a vertically disposed bar contained in the respective loop portion 100 of the strap 44. This bar 108 is provided with upper and lower ends 110 and 112, respectively, and an intermediate connection portion 116 having an opening 118 therein.

Engaged in this opening 118, as shown in FIG. 1, is a hook 120 of a connection means 122 which comprises a turn buckle 124 of hollow tubular construction, having internally screw threaded opposite ends of opposite hand helical threads. In the opposite end of the turn buckle 124 from the end in which the screw 120 is engaged, is a screw 126 having a hook 128 engaged in an opening 130, shown in FIG. 6 of the drawings. The hollow cylindrical member 124 is provided with a flattened intermediate portion 132 adapted to be engaged by a person's fingers for screw threadably rotating the hollow cylindrical member 124 and for, thus, retracting the screw threaded portions of the screws 120 and 126.

It will be obvious to those skilled in the art that the strap 44 does not pivot on a side to side horizontal axis in the same manner as the strap 42, hereinbefore described, and that this strap 44 is more particularly adapted to engage the upper portion of the wearer's back near the connection of the shoulder straps 30 and 32.

The hollow cylindrical member 124 bears across the bars 22 and 24 and may readily be adjusted, as desired, for maintaining the strap 44 taut around the vertical side members 12 and 14 of the pack frame, as shown in FIG. 1 of the drawings.

It will be obvious to those skilled in the art that various modification of the present invention may be resorted to in a manner limited only by a just interpretation of the following claims.

We claim:

1. In a pack frame and backstrap means therefor, the combination of: a pack frame having a pair of horizontally spaced substantially vertical side members; a flexible back engaging strap having forward and rearward sides disposed in substantially vertical planes, said strap having upper and lower edges, said strap having opposite ends disposed adjacent said side members; substantially rigid bars connected to said opposite ends of said strap; said bars being disposed substantially vertically and having opposite ends, one of which is directed upwardly and the other of which is directed downwardly; said bars having connection portions disposed between opposite ends of said bars, said connection portions disposed and aligned between said upper and lower edges of said strap; and holding means secured to said connection portions and said side members, said holding means adapted to hold said strap taut between said side members and also to permit pivotal movement of said taut strap about a side to side generally horizontal pivotal axis.

2. The invention, as defined in claim 1, wherein: said connection means comprises flexible twistable elements connected to said side members.

3. The invention, as defined in claim 1, wherein: said connection means is provided with flexible and twistable take-up portions extending around outer sides of said members and secured together at a rearward location between said side members.

4. The invention, as defined in claim 3, wherein: a turn buckle is connected to said take-up portions to connect them together and adapted to apply tension thereto for holding said back engaging strap taut.

5. The invention, as defined in claim 4, wherein: said turn buckle comprises a hollow tubular member with a bore having opposite hand threads in opposite ends of said bore; and screws having conforming threads and projecting from opposite ends of said tubular member, said screws connected to said take-up portion.

6. The invention, as defined in claim 5, wherein: said connection portions consist of openings in said bars, said screws having hooks extending through said last mentioned openings.

7. The invention, as defined in claim 5, wherein: said turn buckle is provided with an intermediate portion, said intermediate portion being flat to provide finger engaging means for turning said hollow cylindrical portion relative to said screws.

8. The invention, as defined in claim 5, wherein: said turn buckle is provided with an intermediate portion, said intermediate portion being flat to provide finger engaging means for turning said hollow cylindrical portion relative to said screws; said connection portions being openings in said bars; said screws having hooks extending through said last mentioned openings.

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