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(54) **PACK HARNESS**

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(57) **ABSTRACT**

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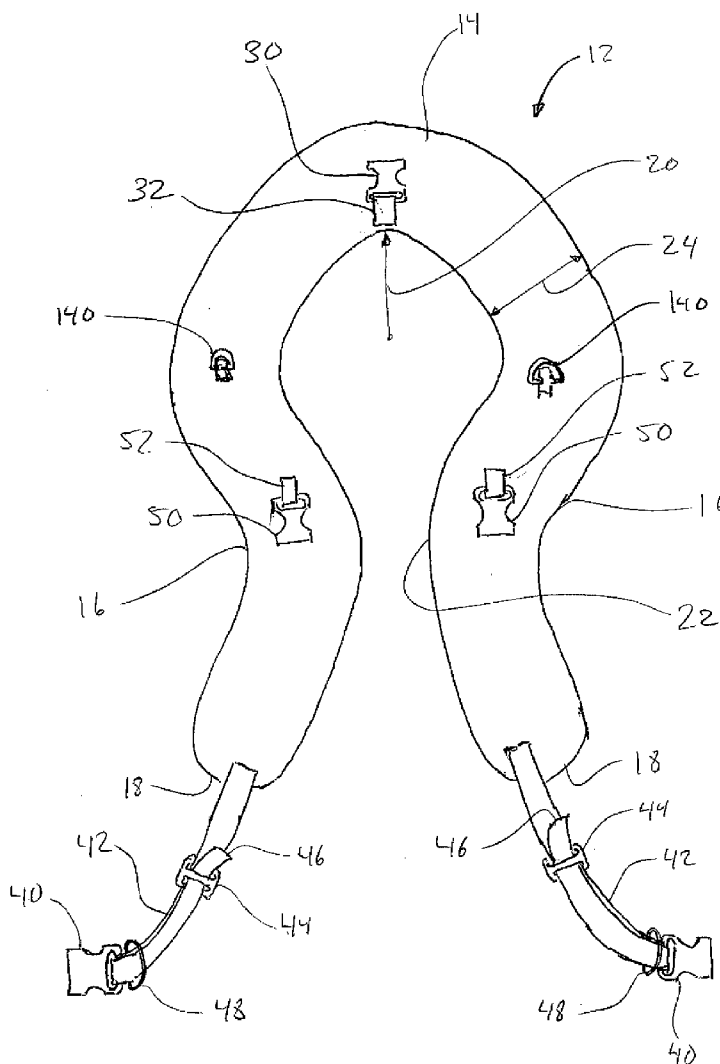
An apparatus for supporting a back pack from a user comprises a substantially u-shaped harness, the harness having a rear neck portion and a pair of front portions extending therefrom. The apparatus further comprises at least one top harness connector suspended substantially downwardly from the rear neck portion, the at least one top harness connector being selectably attachable to the top of a backpack and a bottom harness connector extending from each front portions, each of the bottom harness connectors being selectably attachable to a bottom of a backpack. A system for supporting a load from a user comprises a harness and a first pack having at least one pack top connector and at least two bottom pack connectors. The harness may be located within an article of clothing.

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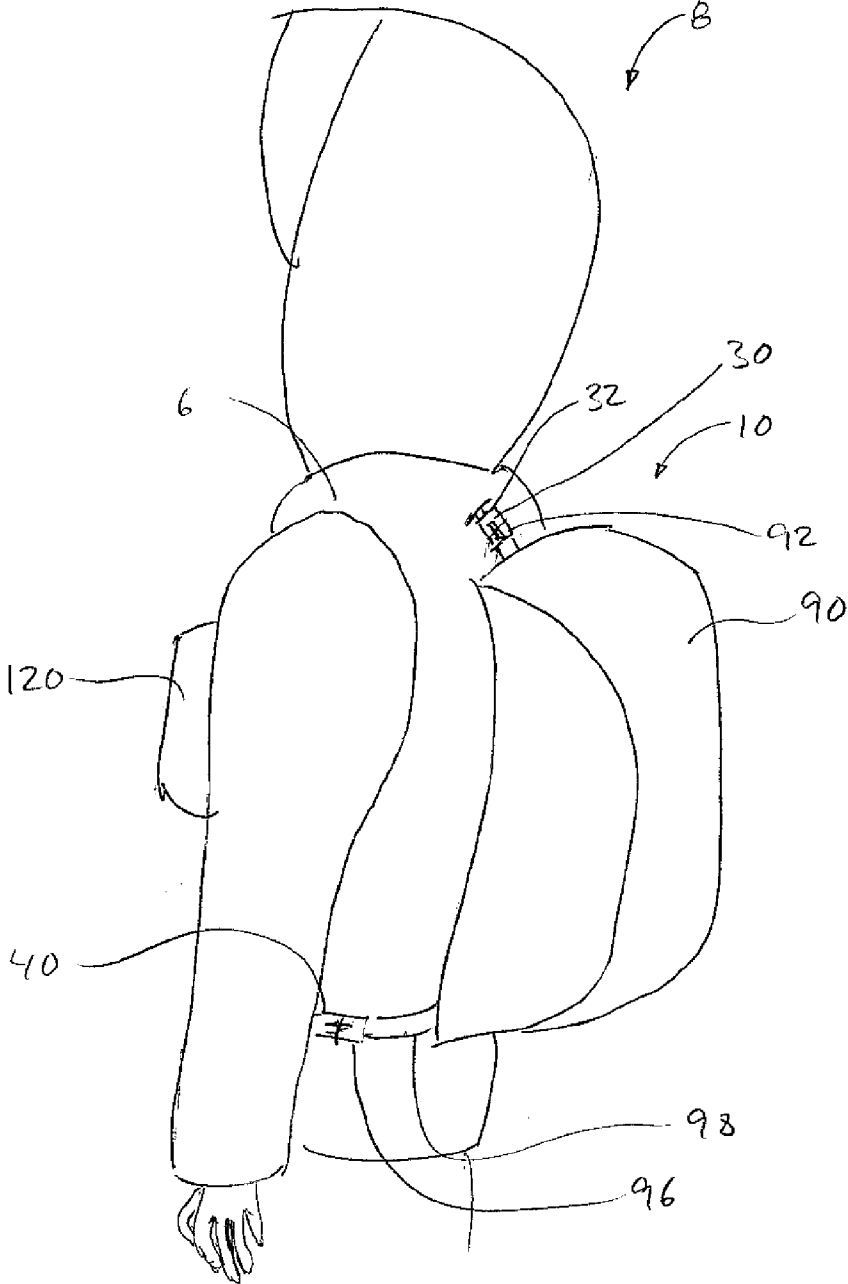


Fig. 1

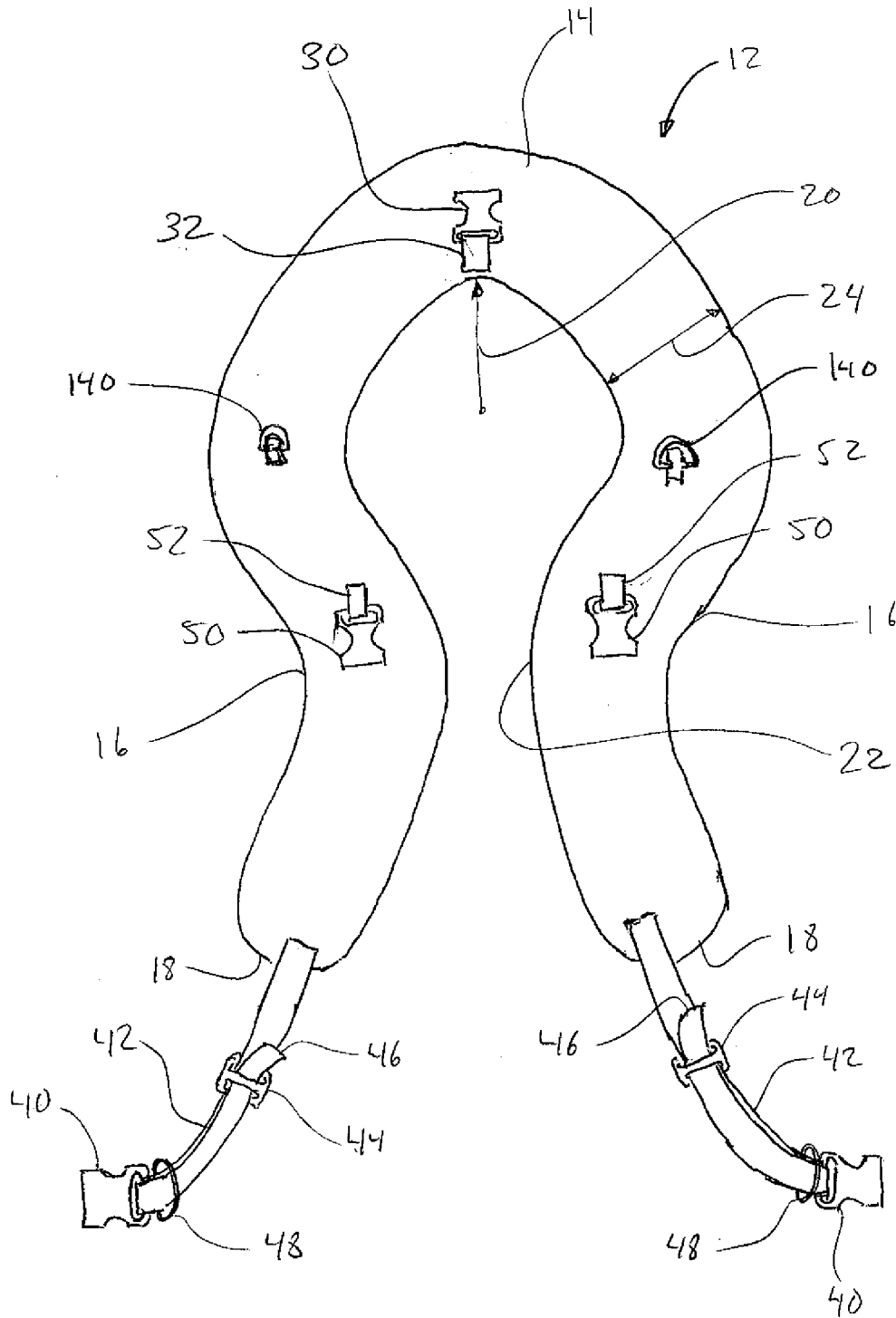


Fig. 2

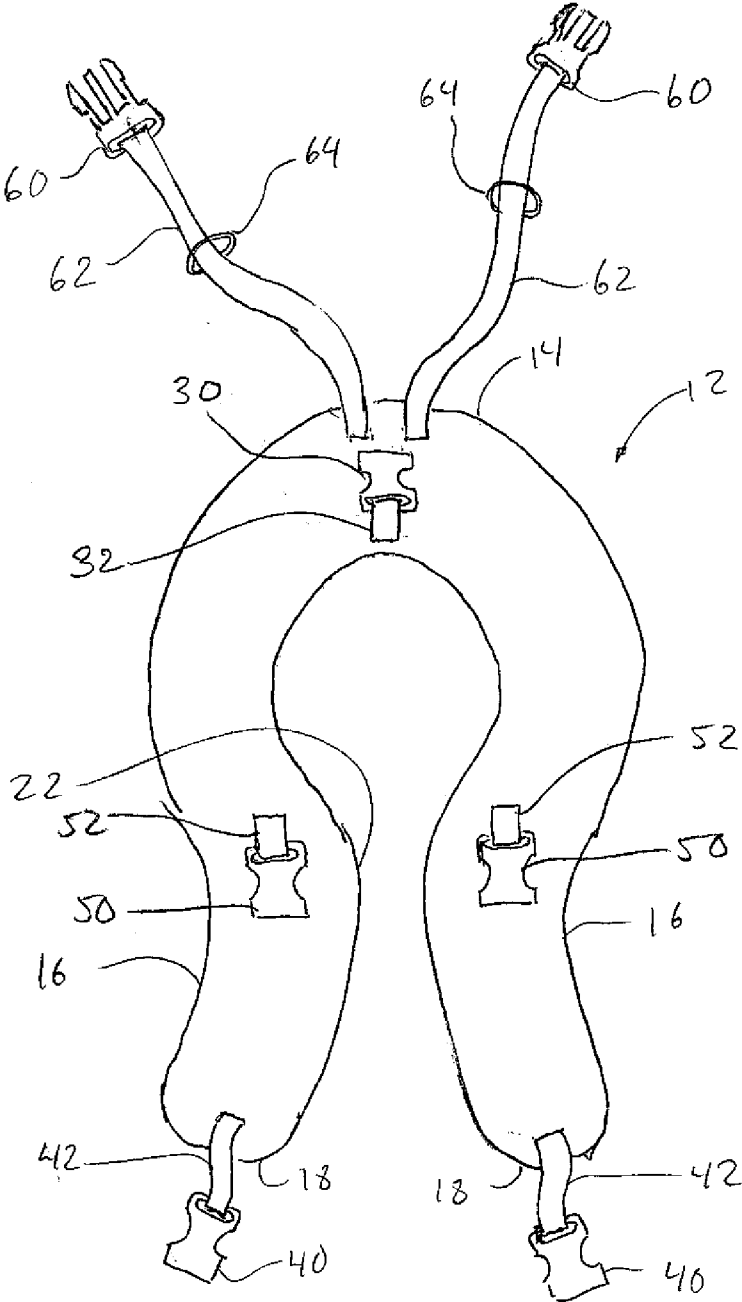


Fig. 3

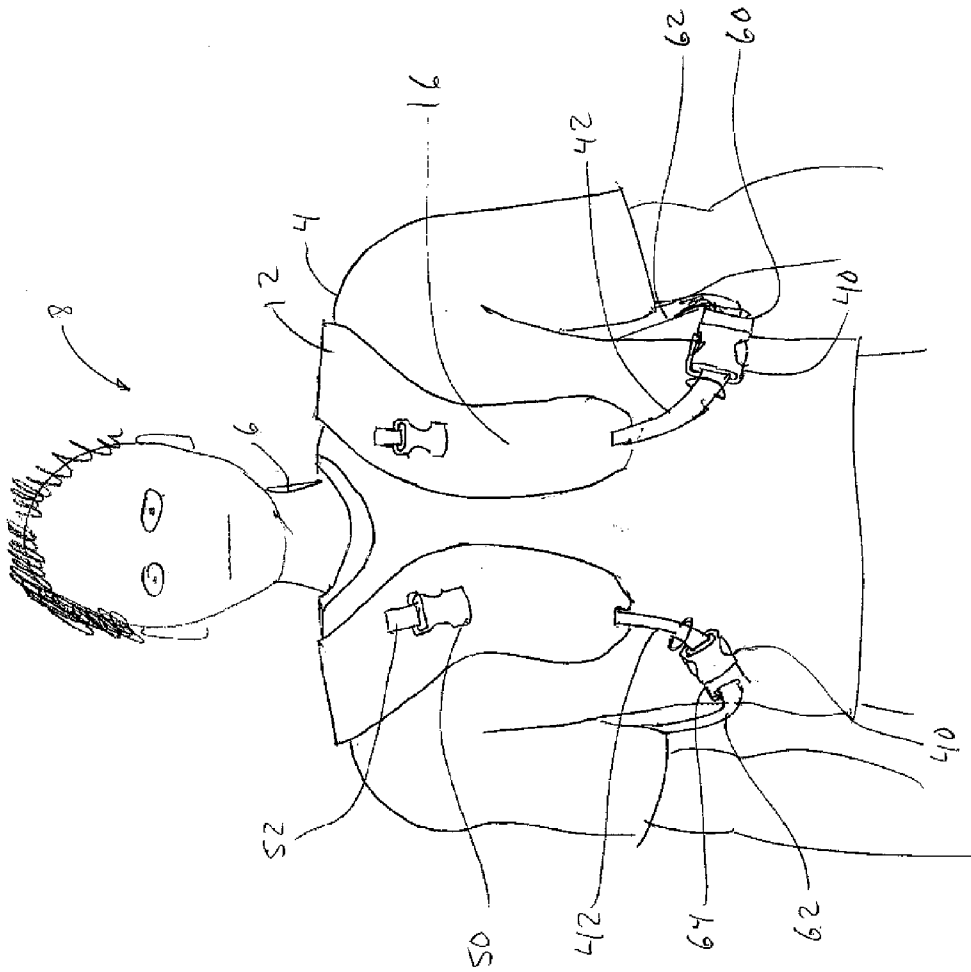


Fig. 4

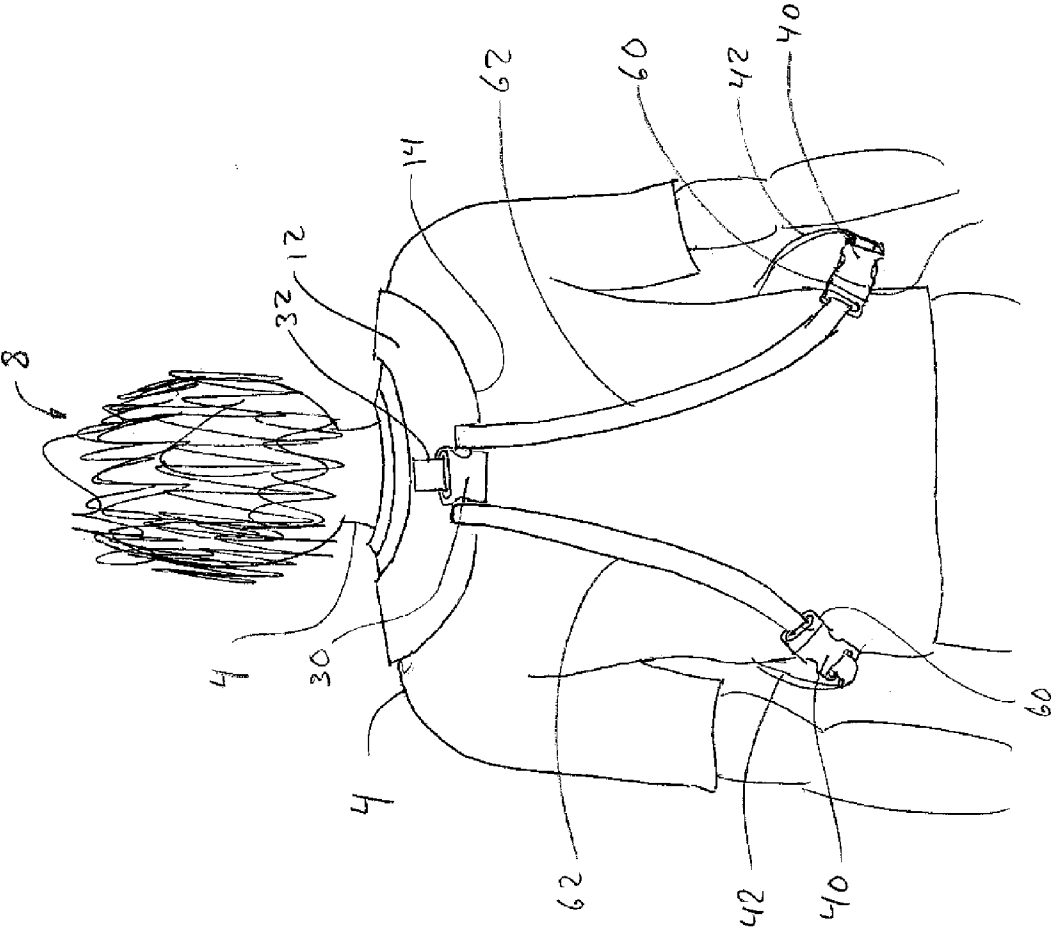


Fig. 5

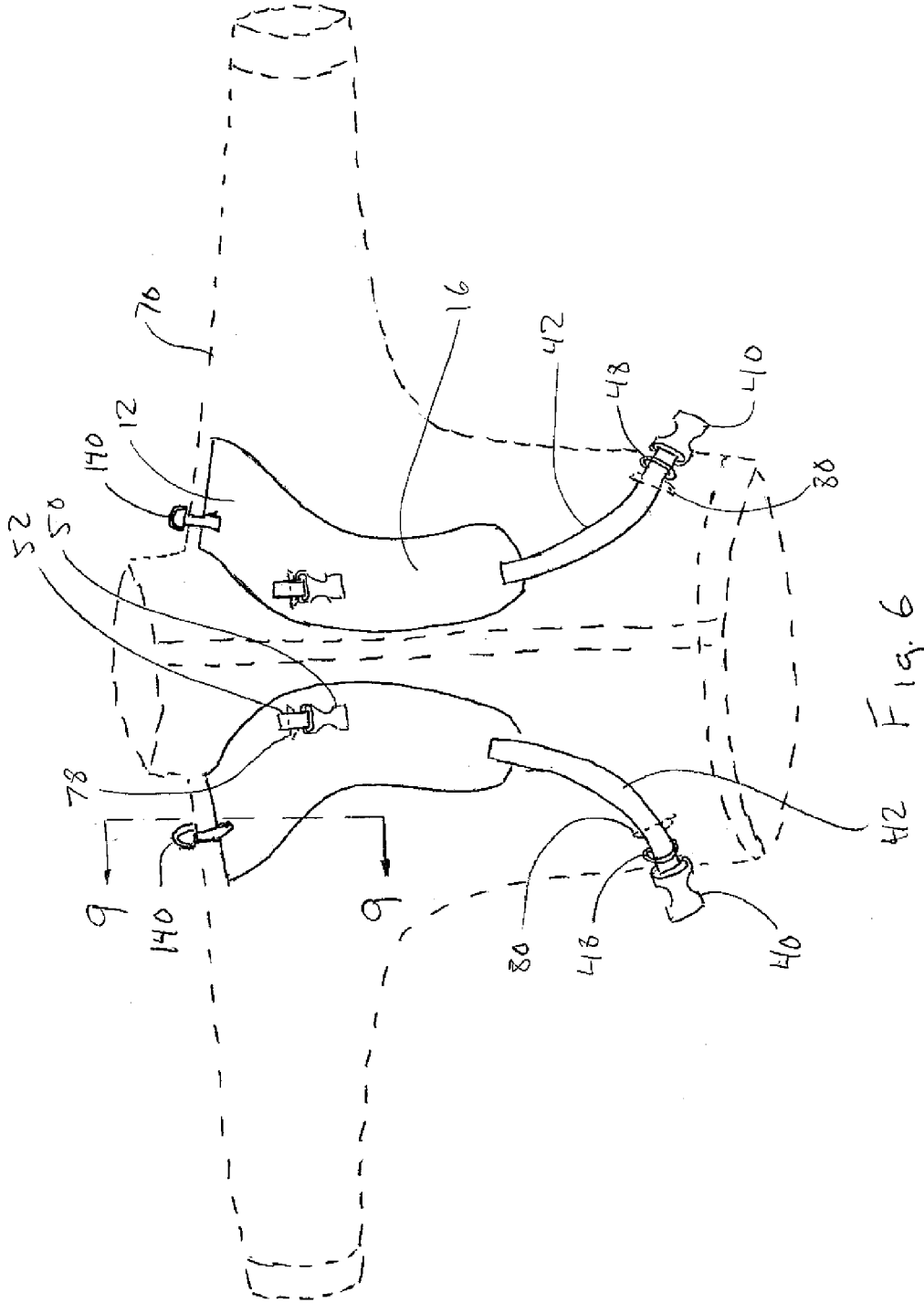


Fig. 6

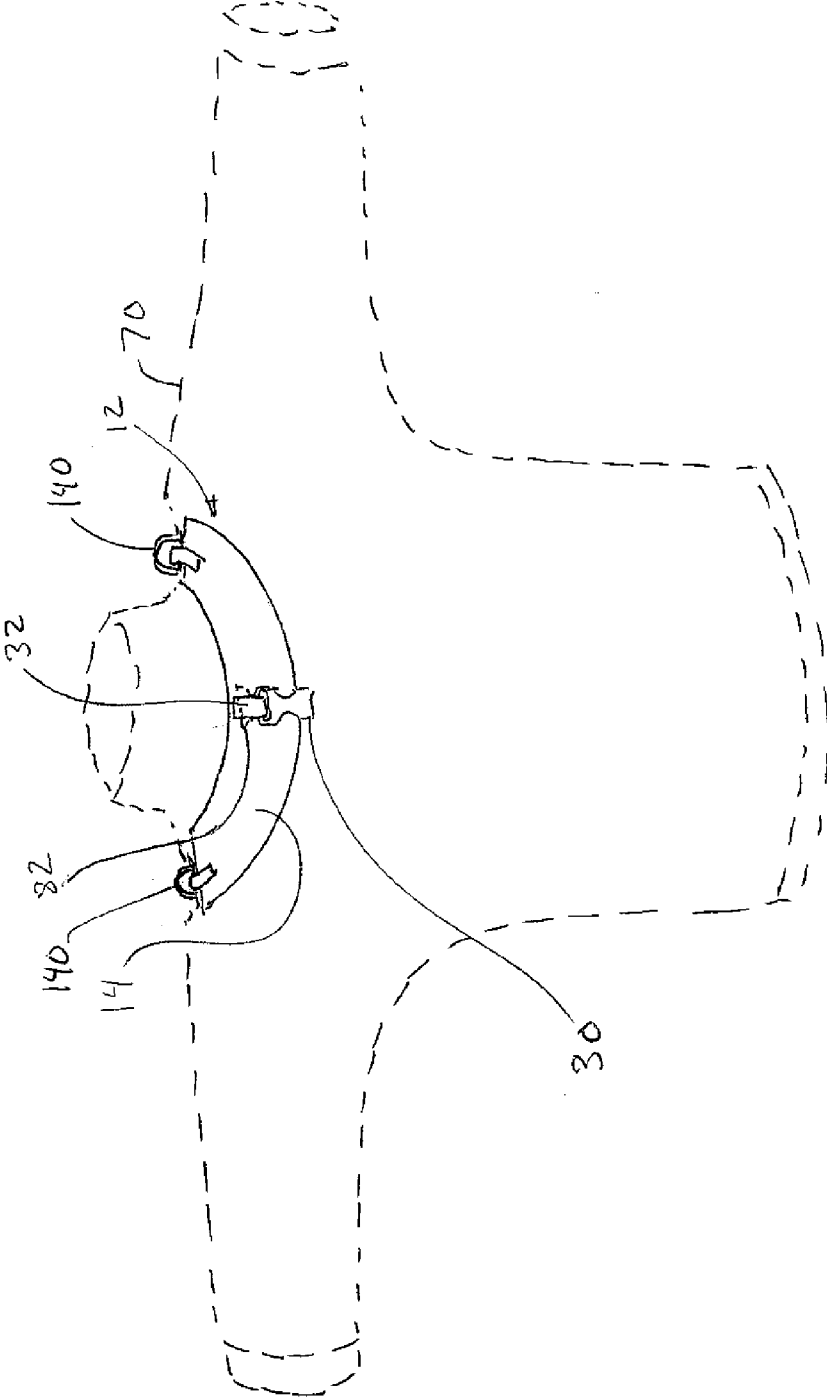


Fig. 7

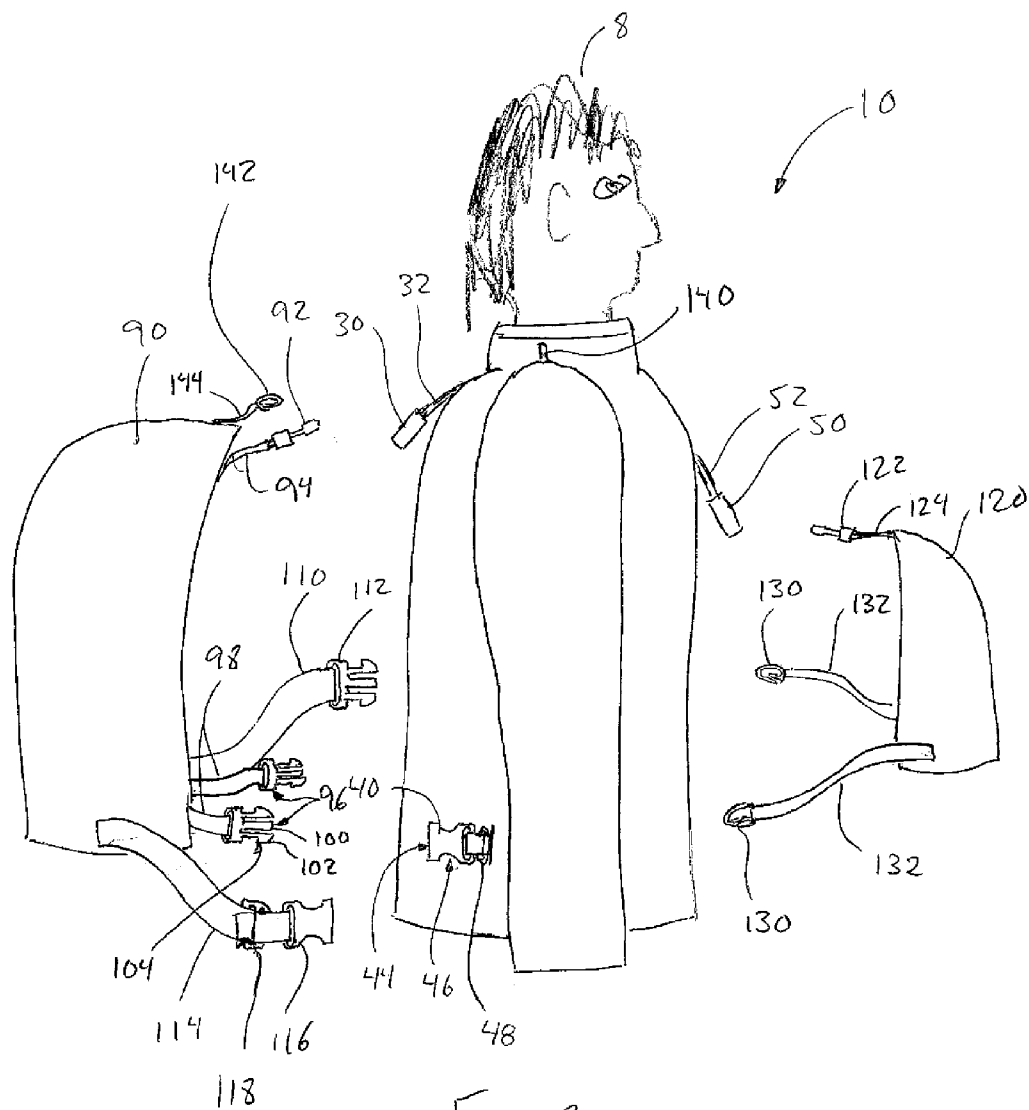


Fig. 8

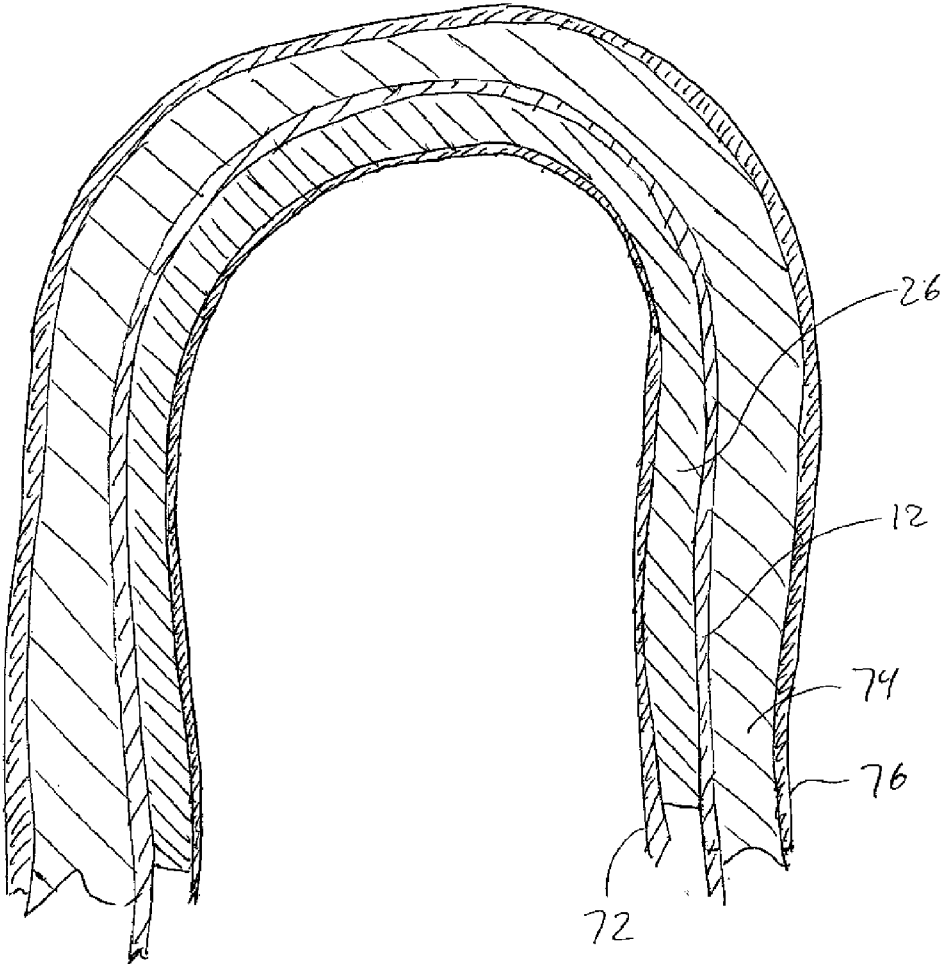


Fig. 9

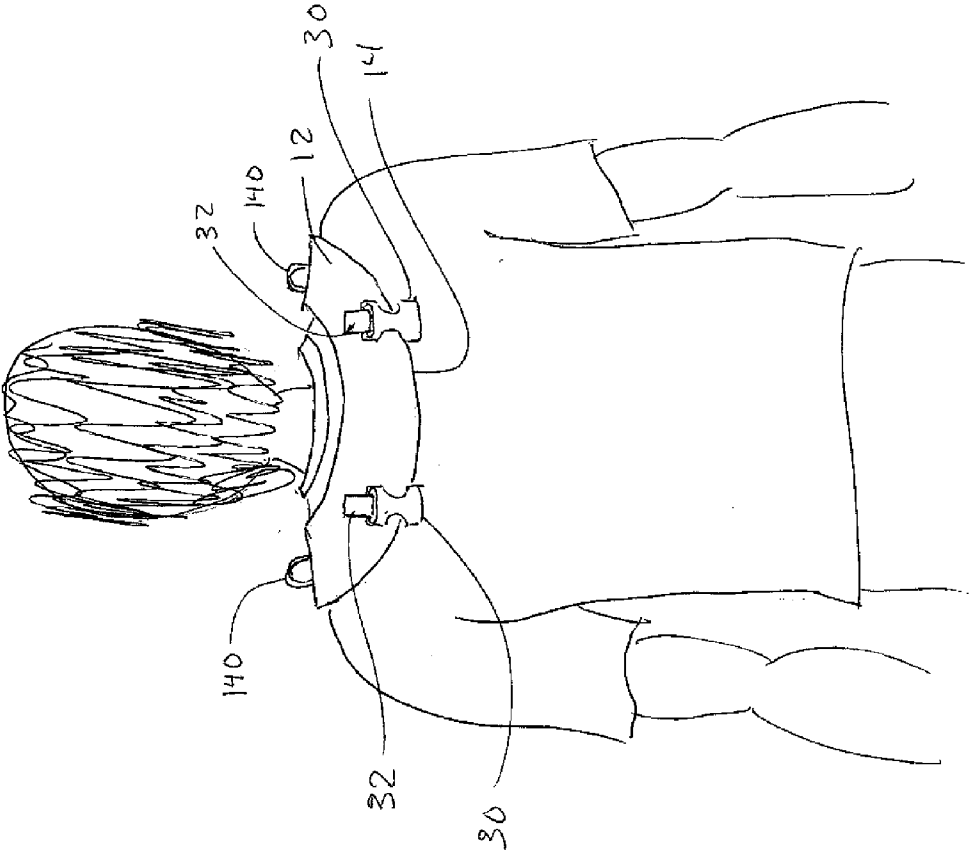


FIG. 10

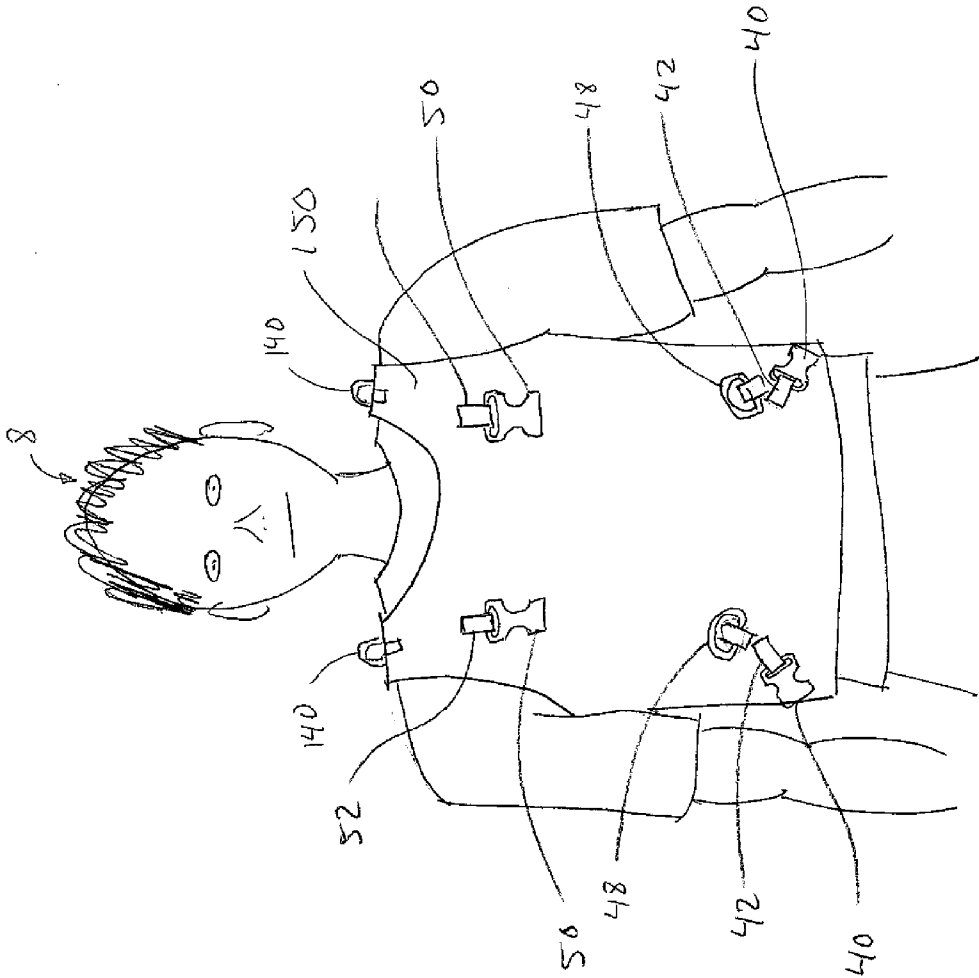


Fig. 11

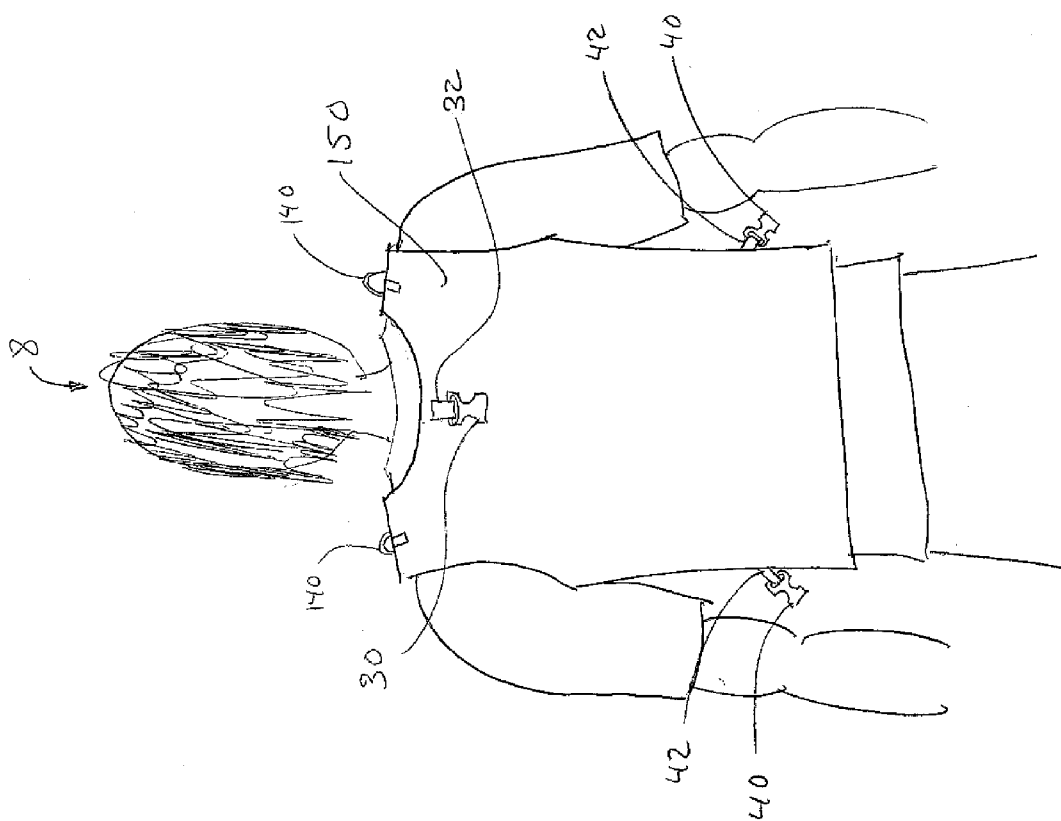


Fig. 12

PACK HARNESS

BACKGROUND OF THE INVENTION

[0001] 1. Field of Invention

[0002] The present invention relates generally to packs in general and in particular to a method and apparatus for suspending a back from a user.

[0003] 2. Description of Related Art

[0004] Backpacks are a well known and common device enabling a person to carry a load. Conventional backpacks include a pair of shoulder straps which are adapted to extend over the shoulders of a wearer when the backpack is located on the back of such wearer.

[0005] A difficulty with conventional backpacks is that they are required to be worn over the outermost layer of clothing of a wearer. In situations where the person will be in cold environments, this will require the person to also wear a warm insulated jacket or the like. Therefore, when placed over the jacket, the straps of the backpack may restrict or reduce the mobility of the wearer due to the compression of the insulation of their jacket under the backpack straps.

[0006] In particular, in the field of hunting or other outdoor activities, it is frequently desirable to carry both a backpack for heavier less frequently accessed objects and a front pack to carry more frequently accessed objects, such as binoculars and the like. Such front packs will often include their own shoulder straps which, when combined with the straps of the backpack serve to further increase the bulk on the user's shoulders and thereby further reduce mobility and range of movement.

[0007] Additionally, where a user wears two separate sets of shoulder straps, the loads carried by each set of straps are not linked to each other. Rather the loads of each set of straps is born by the wear's neck and shoulders alone which results in the back pack pulling the wearer's shoulders backwards and the front pack pulling the wearer's shoulders and neck forwards potentially increasing strain and fatigue for the wearer.

SUMMARY OF THE INVENTION

[0008] According to a first embodiment of the present invention there is disclosed an apparatus for supporting a back pack from a user comprising a substantially u-shaped harness, the harness having a rear neck portion and a pair of front portions extending therefrom. The apparatus further comprises at least one top harness connector suspended substantially downwardly from the rear neck portion, the at least one top harness connector being selectably attachable to the top of a backpack and a bottom harness connector extending from each front portions, each of the bottom harness connectors being selectably attachable to a bottom of a backpack.

[0009] The harness may be sized to extend behind the neck and over the shoulders of a user such that the front portions lie against the front torso of the user. The harness may be flexible and substantially non-elastic. The harness may be formed of a material selected from the group consisting of nylon, cotton, para-aramid and polypropylene. The harness may include a padding layer on an underside thereof.

[0010] The top harness connector and the bottom connector may comprise buckles. The harness includes a single top harness connector. The harness may further include stabilizing connectors between the rear neck portion and the front

portions. The stabilizing connectors may comprise loops adapted to engage stabilizing straps extending from the top of a backpack.

[0011] The bottom harness connector may be connected to the front portions by bottom straps. The bottom straps may include length adjusters.

[0012] Each of the front portions of the harness may further include a top front connector being selectably attachable to a top of a front pack. Each of the front portions of the harness further may include a bottom front connector being selectably attachable to a bottom of the front pack. The top front connectors may comprise buckles.

[0013] The harness may be located within an article of clothing. The harness may be located proximate to an inner liner of the article of clothing wherein the top harness connector and the bottom harness connector extend through an exterior layer of the article of clothing. The article of clothing may be selected from a group consisting of a jacket, a vest a hoodie or a shirt.

[0014] According to a further embodiment of the present invention there is disclosed a system for carrying personal loads comprising a first pack having at least one pack top connector and at least two bottom pack connectors. The system further comprises a harness comprising a substantially u-shaped harness, the harness having a rear neck portion and a pair of front portions extending therefrom. The harness further comprises at least one top harness connector suspended substantially downwardly from the rear neck portion being selectably attachable to said top pack connector and a bottom harness connector extending from each front portions each being selectably attachable to the bottom pack connectors.

[0015] The first pack may comprise a backpack. The harness may further include top and bottom front harness connectors extending from each of the front portions wherein the system further includes a front pack having top and bottom pack connector corresponding to and being selectably connectable to the top and bottom front harness connectors.

[0016] Other aspects and features of the present invention will become apparent to those ordinarily skilled in the art upon review of the following description of specific embodiments of the invention in conjunction with the accompanying figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] In drawings which illustrate embodiments of the invention wherein similar characters of reference denote corresponding parts in each view,

[0018] FIG. 1 is a perspective view of a person wearing backpack and a jacket having a harness incorporated therein according to a first embodiment of the present invention.

[0019] FIG. 2 is a plan view of a harness for use in the system of FIG. 1.

[0020] FIG. 3 is a plan view of a harness for use in the system of FIG. 1 according to a further embodiment of the present invention.

[0021] FIG. 4 is a front view of a person having the harness of FIG. 3 applied to their torso.

[0022] FIG. 5 is a rear view of a person having the harness of FIG. 3 applied to their torso.

[0023] FIG. 6 is a front view of a jacket having the harness of FIG. 2 incorporated therein.

[0024] FIG. 7 is a rear view of a jacket having the harness of FIG. 2 incorporated therein.

[0025] FIG. 8 is a perspective view of a wearer having the system of FIG. 1 applied thereto.

[0026] FIG. 9 is a cross sectional view of the jacket of FIG. 6 as taken along the line 9-9.

[0027] FIG. 10 is a rear view of a person having a harness for use in the system of FIG. 1 applied to a person according to a further embodiment of the present invention.

[0028] FIG. 11 is a front view of a person wearing a vest having connectors attached thereto according to a further embodiment of the present invention.

[0029] FIG. 12 is a rear view of a person wearing the vest of FIG. 11.

DETAILED DESCRIPTION

[0030] Referring to FIG. 1 through 9, a system for supporting a load from a wearer 8 according to a first embodiment of the invention is shown generally at 10. The system comprises a harness 12 adapted to be suspended over a wearer's shoulders and at least one pack. As illustrated in FIG. 1, the system may include a rear backpack 90 and an optional front pack 120. The harness 12 is secured over the shoulders of a user and the backpack 90 and front pack 120 secured thereto. The harness 12 includes a top harness connector 30 located to be connected to the backpack 90 at a position behind the neck 6 of the user.

[0031] With reference to FIGS. 2 and 3, the harness 12 comprises an elongate strip of material arranged in a U-shaped configuration with a rear neck portion 14 disposed between two front portions 16. Each front portion 16 includes a distal end 18 of the harness. The rear neck portion 14 may be substantially arcuate with a radius, generally indicated at 20, corresponding to a neck of an intended wearer such as, by way of non-limiting example, having a radius of between 2 and 9 inches (51 and 229 mm). The front portions 16 are substantially straight sections, although they may also have a slight curve to the profile thereof so as to have narrowed portions 22. The narrowed portions 22 are positioned and sized to correspond to the location of a chest of a wearer as will be more fully described below.

[0032] The harness 12 is formed of any suitable strap type material, such as, by way of non-limiting example, nylon, cotton, para-aramid or polypropylene webbing. The harness material should be selected to be flexible and substantially non-elastic so as to limit the amount of stretch that the harness is permitted. Additionally, the harness 12 may be formed of a material having a degree of stretch to it, such as, by way of non-limiting example, neoprene. The material is also selected to have sufficient strength to carry a conventional backpack load. It will be appreciated that the thickness, width and material type used to form the harness may all be adjusted in conjunction with each other to provide such required strength. In particular, the width 24 of the harness may be selected adequately distribute the weight from the backpack on the user's shoulders, such as, by way of non-limiting example, be between 0.5 and 6 inches (12 and 152 mm) wide. The harness 12 may be formed of a strap material as set out above alone or may also optionally include padding which may be incorporated into the harness material, or may optionally be formed of a separate padding layer 26 under the harness 12 as illustrated in FIG. 9. The padding layer 26, may be located along the entire length of the harness or may optionally be located at specific locations such as corresponding to above the shoulders of a user, or between the narrowed portion 22 and the rear neck portion 14.

[0033] The rear neck portion 14 includes at least one top harness connector 30 extending therefrom. The top harness connector 30 is suspended from and secured to the rear neck portion 14 by a top harness strap 32. The top harness strap 32 may be of any suitable flexible strap type and is secured to the harness 12 by any conventional means, such as, by way of non-limiting example, sewing adhesives, fabric welding or the like. In other embodiments, the top harness connector 30 may be omitted so as to provide a harness 12 adapted to only carry a front pack 120 as described below.

[0034] The connectors of the present device may be of any known connector type, such as, a clasp, hook and loop fasteners, magnets, buttons, hooks, a slide release buckle or the like. In particular, with reference to the bottom harness connectors of FIG. 8, a slide release buckle may conventionally be formed of a male buckle member, such as, by way of non-limiting example, a bottom backpack strap 98, and a corresponding female buckle member, such as, by way of non-limiting example, a bottom harness connector 40. The male buckle member 96 includes a center guide 100 and two spring arms 102 extending parallel thereto. The spring arms 102 include catches 104 along the sides thereof and are biased away from the center guide 100. The female buckle member 40 has an open end 44 sized to receive the center guide 100 and spring arms 102 therein with two holes 46 on each side adapted to engage and retain the catches of the spring arms therein. As illustrated in FIG. 2, the top harness connector 30 may comprise a male buckle portion, although it may also comprise a female buckle portion corresponding to the appropriate buckle portion on the backpack 90 as will be more fully described below.

[0035] The distal ends 18 of the harness 12 includes bottom harness connectors 40 suspended from the harness 12 by bottom harness straps 42. The bottom harness strap 42 may be of any suitable flexible strap type and are secured to the harness 12 by any conventional means, such as, by way of non-limiting example, sewing adhesives, fabric welding or the like. The bottom harness connector 40 may be of any known connector type, such as, a clasp, a slide release buckle or the like. Optionally the bottom harness straps 42 may include length adjusters 44, of any conventionally known type which permit a user to grasp a free end 46 of the straps so as to adjust the length thereof. The bottom harness straps 42 may also include rings 48, such as D-rings for connecting clasps thereto as will be more fully described below. As illustrated in FIGS. 2 and 3, the bottom harness connectors 40 may comprise male buckle portions, although they may also comprise female buckle portions corresponding to the appropriate buckle portions on the backpack 90 as will be more fully described below. For embodiments not including a top harness connector 30, it will also be appreciated that the bottom harness connectors 40 as well.

[0036] The front portion 16 of the harness may also optionally include front harness connector 50 extending therefrom. As illustrated, the front harness includes two connectors 50, although it will be appreciated that one or more may also be utilized. The front harness connectors 50 are suspended from and secured to the front portions 16 by front harness straps 52. The front harness straps 52 may be of any suitable flexible strap type and are secured to the harness 12 by any conventional means, such as, by way of non-limiting example, sewing adhesives, fabric welding or the like. The front harness connectors 50 may be of any known connector type, such as, a clasp, a slide release buckle or the like. As illustrated in

FIGS. 2 and 3, the front harness connector 50 may comprise male buckle portions, although they may also comprise female buckle portions corresponding to the appropriate buckle portions on the front pack 120 as will be more fully described below.

[0037] With reference to FIGS. 4 and 5, the harness 12 may be worn over the clothing of a wearer 8 by locating the rear neck portion 14 behind the neck 6 of a wearer and draping the front portions 16 of over the wearer's shoulders 4 and down their front. As illustrated in FIG. 3, the harness may include optional rear holding connectors 60 connected to the rear neck portion 14 of the harness with rear holding straps 62. The rear holding connectors 60 are selected to be a co-operating size and type as the bottom harness connectors 40. In particular, if the bottom harness connectors 40 are of a female type, then the rear holding connectors 60 should be a male type of the same size so as to permit the rear harness buckles and rear holding connectors to be interconnected with each other. Once connected in such a manner, the harness 12 will be retained on the users torso unless until further use is required. As illustrated in FIG. 4, the front harness connectors 50 will be positioned adjacent to a user's chest when the harness 12 is located on such wearer.

[0038] Optionally with reference to FIGS. 6 and 7, the harness 12 may be incorporated into an article of clothing, such as, by way of non-limiting example, a jacket 70 jacket, a vest a hoodie (also known as a hooded sweatshirt), a shirt or the like. As illustrated in FIGS. 6 and 7, the harness may be incorporated into the jacket below an outer shell of the jacket. With reference to FIG. 9, a cross-sectional view of the harness 12 within the jacket 70 is illustrated wherein the harness is located proximate to a liner layer 72 of the jacket with an insulating layer 74 and an outer shell 76 of the jacket located therearound. The jacket 70 includes chest slits 78 located to pass the front harness straps 52 therethrough, bottom slits 80 located to pass the bottom harness straps 42 therethrough and a rear slit 82 located to pass the top harness strap 32 therethrough. The stabilizing rings 140 may also optionally be passed through slits in the shoulders of the jacket as illustrated in FIGS. 6 and 7.

[0039] Turning now to FIG. 8, the system 10 may include a backpack 90 of any conventional type. The backpack 90 includes at least one top backpack connector 92 secured to the backpack by a top backpack strap 94. The top backpack connectors 92 are selected to be a co-operating size and type as the top harness connectors 30. In particular, if the top harness connector 30 is of a female type, then the top backpack connector 92 should be a male type of the same size so as to permit the top backpack connectors and top harness connectors to be interconnected with each other. The top backpack strap 94 may be of any suitable flexible strap type and are secured to the backpack 90 by any conventional means, such as, by way of non-limiting example, sewing adhesives, fabric welding or the like. The backpack 90 also includes bottom backpack connectors 96 secured to the backpack 90 by bottom backpack straps 98. The bottom backpack connectors 96 are selected to be a co-operating size and type as the bottom harness connectors 40. In particular, if the bottom harness connector 40 is of a female type, then the bottom backpack connector 96 should be a male type of the same size so as to permit the bottom backpack buckles and bottom harness connectors to be interconnected with each other. The bottom backpack strap 98 may be of any suitable flexible strap type and are secured to the backpack 90 by any

conventional means, such as, by way of non-limiting example, sewing adhesives, fabric welding or the like. The backpack 90 may optionally also include a waist belt formed of a first strap 110 having a first connector 112 on the distal end thereof and a second strap 114 having a second connector 116 on the distal end thereof. The first and second connector 112 and 116 are selected to co-operate with each other, such as, by way of non-limiting example, a male and female slide buckle as described above and one or both of the first and second straps may include a length adjustment 118 as described above.

[0040] The front pack 120 may be of any conventional type and includes two top front pack connectors 122 secured to the front pack by a top front pack strap 124. The top front pack connectors 122 are selected to be a co-operating size and type as the front harness connectors 50. In particular, if the front harness connectors 50 are of a female type, then the top front pack connector 122 should be a male type of the same size so as to permit the top front pack connectors and front harness connectors to be interconnected with each other. The top front pack strap 124 may be of any suitable flexible strap type and are secured to the front pack 120 by any conventional means, such as, by way of non-limiting example, sewing adhesives, fabric welding or the like. The front pack 120 also includes bottom front pack clips 130 secured to the front pack 120 by bottom front pack straps 132. The bottom front pack clips 130 are selected to be engageable with the rings 48 on the bottom harness straps 42 and may be selected to be of any conventional type, such as, by way of non-limiting example, a carabineer or the like. The bottom front pack strap 130 may be of any suitable flexible strap type and are secured to the front pack 120 by any conventional means, such as, by way of non-limiting example, sewing adhesives, fabric welding or the like.

[0041] In operation, a wearer 8 may locate the harness 12 over their shoulders with the rear neck portion 14 behind their neck and the front portions draped down the front of their torso. When a backpack 90 is not to be utilized with the harness 12, the rear holding connectors 60 may be connected to the bottom harness connectors 40 to secure the harness on the user. If a backpack 90 is to be worn, the rear holding connectors may be disconnected at the top backpack connector 92 secured to the top harness connector 30 and the bottom backpack connectors 96 secured to the bottom harness connectors 40 to secure the backpack to the user. Additionally, if a front pack 120 is to be utilized, the top front pack connectors 122 may be secured to the front harness connectors 50 and the bottom front pack clips 130 secured to the rings 48 to secure the front pack 120 to the user. It will be observed that in such a manner, both the front and back loads applied to the user are supported by a common harness 12 thereby allowing them to balance and offset each other in user. It will also be observed that as a single harness supports both loads, there are less straps on the user to hinder movement. In an alternative embodiment, the harness 12 may be incorporated into an article of clothing, such as, by way of non-limiting example, a jacket 70. In such an embodiment, the wearer may simply wear the jacket and attach the backpack 90 and front pack 120 to the harness as described above.

[0042] In an alternative embodiment of the present invention the harness may include more than one top harness connector 30, such as, by way of non-limiting example, two or more which are spaced apart from each other to assist with stabilizing the load in the backpack 90. Furthermore, as illus-

trated in FIG. 8, the backpack 90 may include stabilizing straps 144 having clips 142 on the distal end thereof which are located proximate to the top of the backpack 90 so as to be connectable to stabilizing rings 140 on the harness 12. The stabilizing rings are located between the rear neck portion 14 and the front portions 16 so as to be located above the shoulders of the wearer.

[0043] Turning to FIGS. 11 and 12, according to a further embodiment of the present invention, the top harness connector 30, front harness connectors 50, bottom harness connectors 40 and rings 48 and 140 may be secured to the exterior surface of a vest 150, such as, by way of non-limiting example, a tactical or other type of vest wherein the vest replaces and functions in a similar manner to the harness 12.

[0044] While specific embodiments of the invention have been described and illustrated, such embodiments should be considered illustrative of the invention only and not as limiting the invention as construed in accordance with the accompanying claims.

What is claimed is:

1. An apparatus for supporting a back pack from a user comprising:
 - a substantially u-shaped harness, said harness having a rear neck portion and a pair of front portions extending therefrom;
 - at least one top harness connector suspended substantially downwardly from said rear neck portion, said at least one top harness connector being selectably attachable to the top of a backpack; and
 - a bottom harness connector extending from each front portions, each of said bottom harness connectors being selectably attachable to a bottom of a backpack.
2. The apparatus of claim 1 wherein said harness is sized to extend behind the neck and over the shoulders of a user such that the front portions lie against the front torso of the user.
3. The apparatus of claim 1 wherein said harness is flexible and substantially non-elastic.
4. The apparatus of claim 3 wherein said harness is formed of a material selected from the group consisting of nylon, cotton, para-aramid and polypropylene.
5. The apparatus of claim 1 wherein said harness includes a padding layer on an underside thereof.
6. The apparatus of claim 1 wherein said top harness connector and said bottom connector comprise buckles.
7. The apparatus of claim 1 wherein said harness includes a single top harness connector.
8. The apparatus of claim 1 wherein said harness further includes stabilizing connectors between said rear neck portion and said front portions.

9. The apparatus of claim 8 wherein said stabilizing connectors comprise loops adapted to engage stabilizing straps extending from the top of a backpack.

10. The apparatus of claim 1 wherein said bottom harness connector are connected to said front portions by bottom straps.

11. The apparatus of claim 10 wherein said bottom straps include length adjusters.

12. The apparatus of claim 1 wherein each of said front portions of said harness further includes a top front connector being selectably attachable to a top of a front pack.

13. The apparatus of claim 12 wherein each of said front portions of said harness further includes a bottom front connector being selectably attachable to a bottom of said front pack.

14. The apparatus of claim 12 wherein said top front connectors comprise buckles.

15. The apparatus of claim 1 wherein said harness is located within an article of clothing.

16. The apparatus of claim 15 wherein said harness is located proximate to an inner liner of said article of clothing wherein said top harness connector and said bottom harness connector extend through an exterior layer of said article of clothing.

17. The apparatus of claim 16 wherein said article of clothing is selected from a group consisting of a jacket, a vest a hoodie or a shirt.

18. A system for carrying personal loads comprising:

- a first pack having at least one pack top connector and at least two bottom pack connectors; and
- a harness comprising:

- a substantially u-shaped harness, said harness having a rear neck portion and a pair of front portions extending therefrom;
- at least one top harness connector suspended substantially downwardly from said rear neck portion, said at least one top connector being selectably attachable to said top pack connector; and
- a bottom harness connector extending from each front portions, each of said bottom harness connectors being selectably attachable to one of said bottom pack connectors.

19. The system of claim 18 wherein said pack comprises a backpack.

20. The system of claim 19 wherein said harness further includes top and bottom front harness connectors extending from each of said front portions wherein said system further includes a front pack having top and bottom pack connector corresponding to and being selectably connectable to said top and bottom front harness connectors.

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