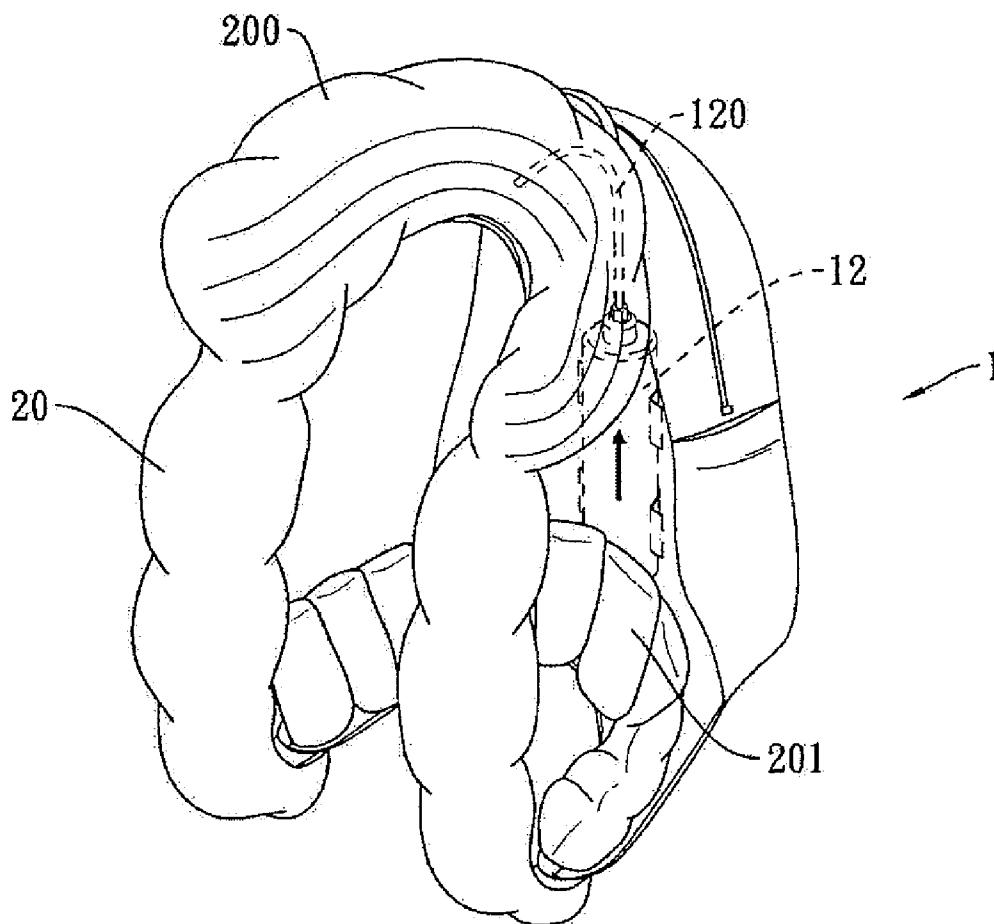




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(19) **United States**(12) **Patent Application Publication**
Tsai(10) **Pub. No.: US 2014/0203056 A1**(43) **Pub. Date: Jul. 24, 2014**(54) **MULTIFUNCTIONAL PASSIVE AIR BAG
KNAPSACK**(71) Applicant: **Ai-Ling Tsai**, Taichung City (TW)(72) Inventor: **Ai-Ling Tsai**, Taichung City (TW)(21) Appl. No.: **13/748,645**(22) Filed: **Jan. 24, 2013****Publication Classification**(51) **Int. Cl.**
A45F 3/04 (2006.01)(52) **U.S. Cl.**
CPC **A45F 3/04** (2013.01)
USPC **224/576**(57) **ABSTRACT**

A knapsack includes a main body, a strap, and a pull ring. The main body has a receiving space which has a mounting portion which is connected with an air inflation bottle which has an output terminal which has a pin. The strap has is connected with the main body and has a safety air bag which is connected to the output terminal of the air inflation bottle. The pull ring is extended into the strap and is connected with the pin. Thus, when the safety air bag is triggered, the safety air bag is expanded to surround the user's body, so that the knapsack can buffer the shock and protect the user's body.



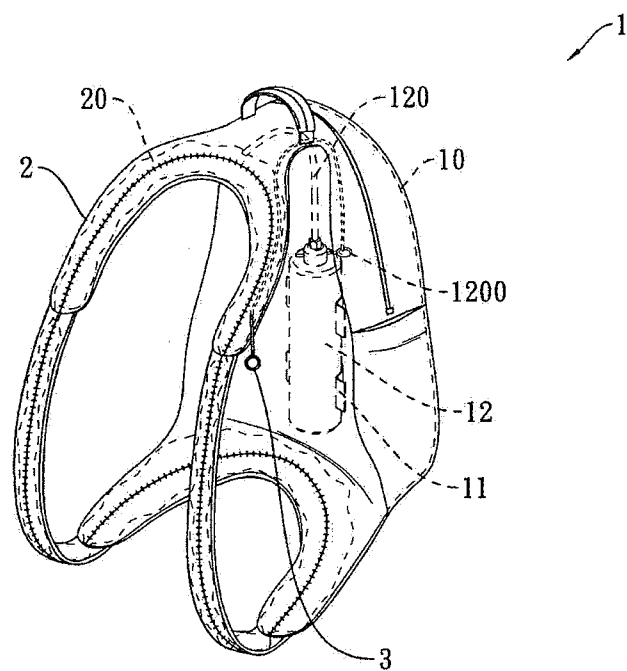


FIG. 1

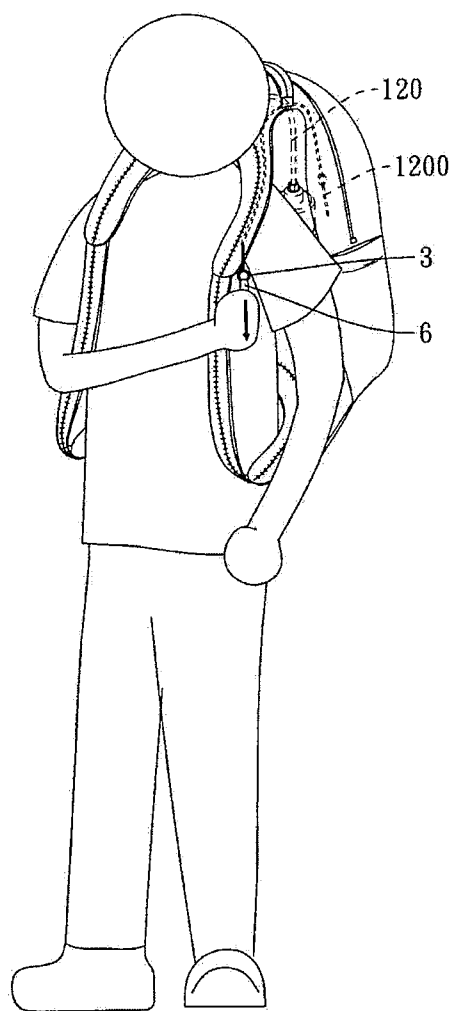


FIG. 2

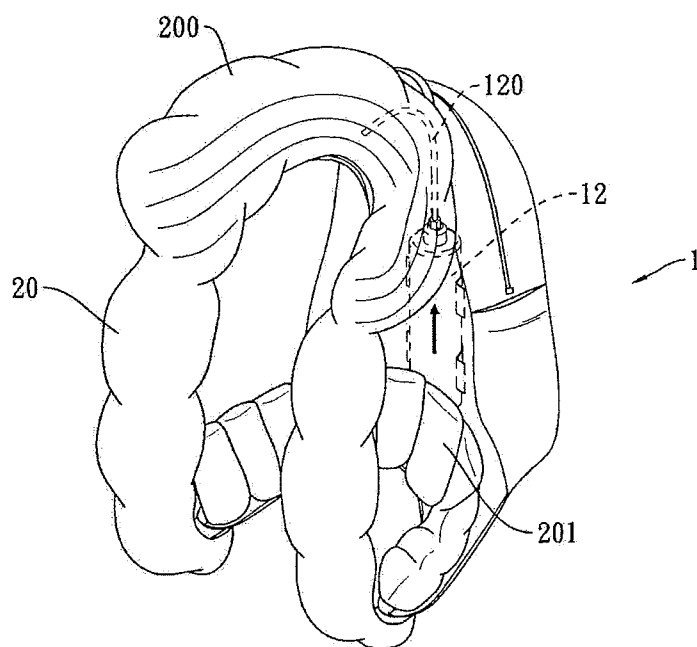


FIG. 3

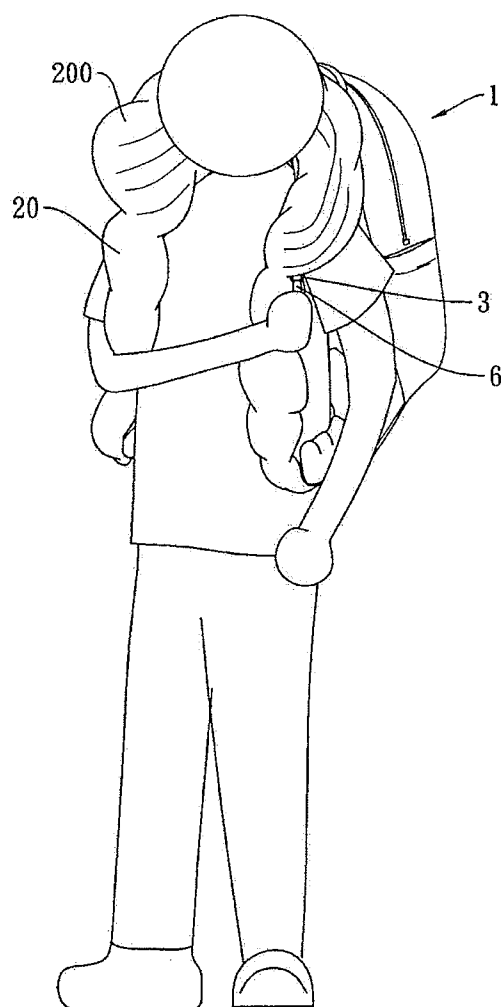


FIG. 4

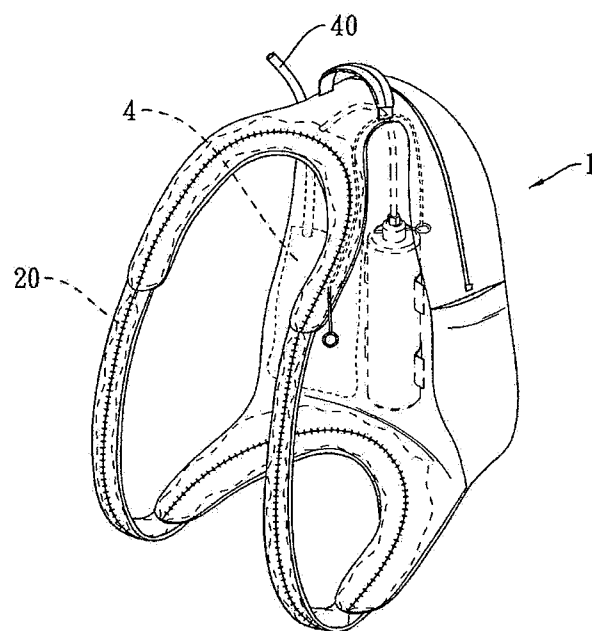


FIG. 5

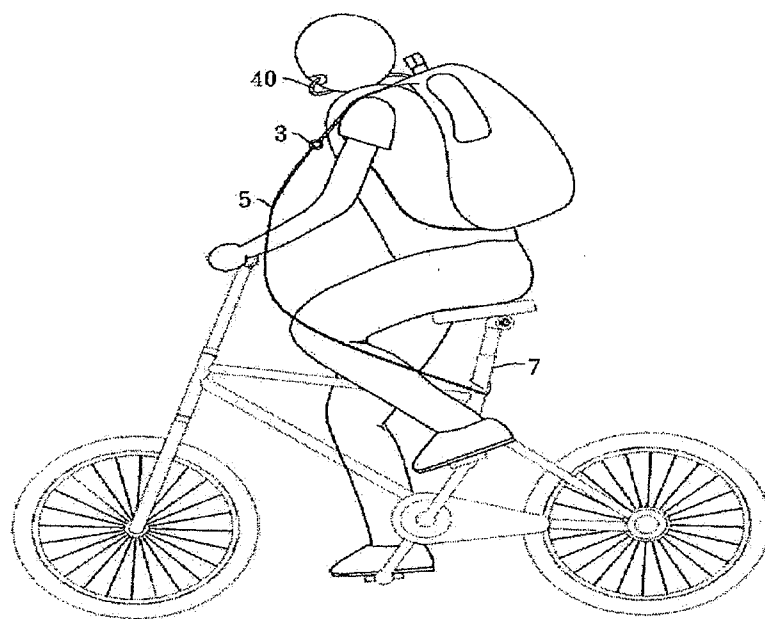


FIG. 6

MULTIFUNCTIONAL PASSIVE AIR BAG KNAPSACK

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a personal article and, more particularly, to a knapsack that is carried on a user's back and shoulder and is available for a bicycle, motorcycle, ski, boat, watercraft and the like.

[0003] 2. Description of the Related Art

[0004] A conventional knapsack comprises a main body and a strap connected with the main body. The main body has a receiving space and many pockets to receive some items, such as clothes, foods, medicines and the like. Thus, a user can carry the knapsack to receive and bear his personal items that are necessary for a determined purpose, such as travel, transportation, makeup, sports, mediation or the like. However, the conventional knapsack does not a guard or safety function and cannot protect the user's body at an emergency condition, thereby limiting the versatility of the conventional knapsack. Thus, when the user falls out of a bicycle during riding or when the user is submerged in the water, the conventional knapsack cannot provide any buffering or lifesaving function during emergency.

BRIEF SUMMARY OF THE INVENTION

[0005] In accordance with the present invention, there is provided a knapsack, comprising a main body, a strap connected with the main body, and a pull ring located outside of the strap. The main body has an interior provided with a receiving space. The receiving space of the main body has a periphery provided with a mounting portion. The mounting portion of the main body is connected with an air inflation bottle. The air inflation bottle is provided with an output terminal. The output terminal of the air inflation bottle has an upper end provided with a pin. The strap has two opposite ends each connected with upper and lower ends of the main body. The strap has an interior provided with a safety air bag. The safety air bag of the strap is connected to the output terminal of the air inflation bottle. The pull ring has one end extended into the strap and connected with the pin of the air inflation bottle.

[0006] Preferably, the safety air bag of the strap includes a neck protection portion which is expanded in a straight direction.

[0007] Preferably, the safety air bag of the strap includes a waist protection portion which is expanded in a transverse direction.

[0008] Preferably, the safety air bag of the strap has a bright color to provide a warning function.

[0009] Preferably, the knapsack further comprises a water container located outside of the main body, and a drinking straw located outside of the main body and connected with the water container.

[0010] Preferably, the knapsack further comprises a drawing line having a first end connected with the pull ring to drive the pull ring and a second end connected with a seat tube of a bicycle.

[0011] Preferably, the knapsack further comprises a drive member connected with the pull ring to drive the pull ring.

[0012] The primary objective of the present invention is to provide a multifunctional passive air bag knapsack.

[0013] According to the primary advantage of the present invention, when the safety air bag is triggered and opened, the neck protection portion of the safety air bag is expanded in a straight direction to protect the user's neck and chest, and the waist protection portion of the safety air bag is expanded in a transverse direction to protect the user's back, spine and waist, so that the knapsack can buffer the shock and protect the user's body to prevent the user from being injured due to a strong or violent hit.

[0014] According to another advantage of the present invention, the water container supplies drinking water to the user through the drinking straw so as to prevent the user from suffering sunstroke due to a large loss of water.

[0015] According to a further advantage of the present invention, the safety air bag of the strap is inflated instantaneously to float on the water so that the knapsack functions as a lifesaving suit or life buoy so as to protect the user and to prevent the user from being drowned.

[0016] According to a further advantage of the present invention, when the user falls out of the bicycle during riding, the pull ring is pulled by the drawing line to open the safety air bag, so that the safety air bag is inflated and expanded instantaneously so as to protect the user's body efficiently.

[0017] Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[0018] FIG. 1 is a perspective view of a knapsack in accordance with the preferred embodiment of the present invention.

[0019] FIG. 2 is a schematic operational view of the knapsack for a user as shown in FIG. 1 in use.

[0020] FIG. 3 is a schematic operational view of the knapsack as shown in FIG. 1 in use.

[0021] FIG. 4 is a schematic operational view of the knapsack as shown in FIG. 2 in use.

[0022] FIG. 5 is a perspective view of a knapsack in accordance with another preferred embodiment of the present invention.

[0023] FIG. 6 is a side view of a knapsack in accordance with another preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0024] Referring to the drawings and initially to FIGS. 1-4, a knapsack in accordance with the preferred embodiment of the present invention comprises a main body 1, a strap 2 connected with the main body 1, and a pull ring 3 located outside of the strap 2. The knapsack further comprises a drive member 6 connected with the pull ring 3 to drive the pull ring 3.

[0025] The main body 1 has an interior provided with a receiving space 10. The receiving space 10 of the main body 1 has a periphery provided with a mounting portion 11. The mounting portion 11 of the main body 1 is connected with an air inflation bottle 12. The air inflation bottle 12 is provided with an output terminal 120. The output terminal 120 of the air inflation bottle 12 has an upper end provided with a pin 1200.

[0026] The strap 2 has two opposite ends each connected with upper and lower ends of the main body 1. The strap 2 has

an interior provided with a safety air bag 20. The safety air bag 20 of the strap 2 is connected to the output terminal 120 of the air inflation bottle 12. Preferably, the safety air bag 20 of the strap 2 has a bright color to provide a warning function. [0027] The pull ring 3 has one end extended into the strap 2 and connected with the pin 1200 of the air inflation bottle 12. The pin 1200 is located between the output terminal 120 of the air inflation bottle 12 and the safety air bag 20 of the strap 2 to interrupt a connection between the output terminal 120 of the air inflation bottle 12 and the safety air bag 20 of the strap 2.

[0028] In operation, referring to FIGS. 3 and 4 with reference to FIGS. 1 and 2, when the drive member 6 is pulled by a user at an emergency condition, the pull ring 3 is drawn to drive the pin 1200 of the air inflation bottle 12 so that the pin 1200 of the air inflation bottle 12 is detached from the output terminal 120 of the air inflation bottle 12. After the pin 1200 of the air inflation bottle 12 is removed from the output terminal 120 of the air inflation bottle 12, the output terminal 120 of the air inflation bottle 12 is connected to the safety air bag 20, so that the air in the air inflation bottle 12 is delivered through the output terminal 120 of the air inflation bottle 12 into the safety air bag 20 of the strap 2 to inflate and expand the safety air bag 20 of the strap 2 instantaneously so as to protect the user's body.

[0029] As shown in FIGS. 3 and 4, the safety air bag 20 of the strap 2 includes a neck protection portion 200 and a waist protection portion 201. The neck protection portion 200 of the safety air bag 20 is expanded in a straight direction to protect the user's neck and chest. The waist protection portion 201 of the safety air bag 20 is expanded in a transverse direction to protect the user's back, spine and waist. In addition, the safety air bag 20 of the strap 2 floats on the water so that the knapsack functions as a lifesaving suit or life buoy to protect the user when the user is drowning.

[0030] Referring to FIG. 5, the knapsack further comprises a water container 4 located outside of the main body 1, and a drinking straw 40 located outside of the main body 1 and connected with the water container 4. Thus, the water container 4 supplies drinking water to the user through the drinking straw 40.

[0031] Referring to FIG. 6, the knapsack further comprises a drawing line 5 having a first end connected with the pull ring 3 to drive the pull ring 3 and a second end connected with a seat tube 7 of a bicycle. In such a manner, when the user falls out of the bicycle unintentionally, the pull ring 3 is pulled by the drawing line 5 to open the safety air bag 20, so that the safety air bag 20 is inflated and expanded instantaneously so as to protect the user's body.

[0032] Accordingly, when the safety air bag 20 is triggered and opened, the neck protection portion 200 of the safety air bag 20 is expanded in a straight direction to protect the user's neck and chest, and the waist protection portion 201 of the safety air bag 20 is expanded in a transverse direction to protect the user's back, spine and waist, so that the knapsack can buffer the shock and protect the user's body to prevent the user from being injured due to a strong or violent hit. In addition, the water container 4 supplies drinking water to the user through the drinking straw 40 so as to prevent the user from suffering sunstroke due to a large loss of water. Further, the safety air bag 20 of the strap 2 is inflated instantaneously to float on the water so that the knapsack functions as a lifesaving suit or life buoy so as to protect the user and to prevent the user from being drowned. Further, when the user

falls out of the bicycle during riding, the pull ring 3 is pulled by the drawing line 5 to open the safety air bag 20, so that the safety air bag 20 is inflated and expanded instantaneously so as to protect the user's body efficiently.

[0033] Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the true scope of the invention.

1. A knapsack, comprising:

a main body;
a strap connected with the main body; and
a pull ring located outside of the strap; wherein:
the main body has an interior provided with a receiving space;
the receiving space of the main body has a periphery provided with a mounting portion;
the mounting portion of the main body is received and hidden in the receiving space of the main body;
the mounting portion of the main body is connected with an air inflation bottle;
the air inflation bottle is received and hidden in the receiving space of the main body;
the air inflation bottle is provided with an output terminal;
the output terminal of the air inflation bottle has an upper end provided with a pin;
the strap has two opposite ends each connected with upper and lower ends of the main body;
the strap has an interior provided with a safety air bag;
the safety air bag is received and hidden in the strap;
the safety air bag of the strap is connected to the output terminal of the air inflation bottle; and
the pull ring has one end extended into the strap and connected with the pin of the air inflation bottle.

2. The knapsack of claim 1, wherein the safety air bag of the strap includes a neck protection portion which is expanded in a straight direction to push the strap outward.

3. The knapsack of claim 2, wherein the safety air bag of the strap includes a waist protection portion which is expanded in a transverse direction to push the strap outward.

4. The knapsack of claim 1, wherein the safety air bag of the strap has a bright color to provide a warning function.

5. The knapsack of claim 1, further comprising:

a water container located outside of the main body and covered by the strap; and
a drinking straw located outside of the main body and connected with the water container.

6. The knapsack of claim 1, further comprising:

a drawing line having a first end connected with the pull ring to drive the pull ring and a second end connected with a seat tube of a bicycle.

7. The knapsack of claim 1, further comprising:

a drive member connected with the pull ring to drive the pull ring.

8. The knapsack of claim 1, wherein the pin of the air inflation bottle is removable outward and detachable from the air inflation bottle.

9. The knapsack of claim 3, wherein the neck protection portion and the waist protection portion of the safety air bag are connected with each other.