**Title:** A FLUID CONTAINER CARRYING DEVICE AND A NECK PROTECTION DEVICE PROVIDED WITH SUCH A FLUID CONTAINER CARRYING DEVICE

**Abstract:** A fluid container carrying device (10) comprising a back piece (15) and a front piece (16) forming a pocket (17) having an opening (18) for receiving and holding a fluid container (19), wherein the fluid container carrying device (10) further comprises a first strap (24) provided with a first fastener (27) for fastening to a first side portion of a neck protection device (11), a second strap (25) provided with a second fastener (28) for fastening to a second side portion of the neck protection device (11), and a fastening means (29) arranged on the back piece (15) of the pocket (17) for fastening to a rear lower member (13) of the neck protection device (11). The present invention also relates to a neck protection device (11) provided with such a fluid container carrying device (10).
A FLUID CONTAINER CARRYING DEVICE AND A NECK PROTECTION
DEVICE PROVIDED WITH SUCH A FLUID CONTAINER CARRYING DE-
VICE

FIELD OF THE INVENTION

The present invention relates to a fluid container carrying device. Such
fluid container carrying devices are commonly used for carrying a fluid con-
tainer with water or a sports drink during a sports activity. The present inven-
tion also relates to a neck protection device provided with such a fluid con-
tainer carrying device. Neck protection devices are used in connection with
activities requiring the use of a helmet, such as within the field of motor
sports. The need for fluid arises all the time and the fluid container carrying
device according to the invention is designed for receiving and holding a fluid
container, so that active and needing people easily can carry a fluid container
and be replenished with fluid.

PRIOR ART

There are several different types of fluid container carrying devices
and systems in the prior art. The most common is backpacks with accompa-
nying fluid containers. These fluid containers are generally made of silicone
and are reusable. The fluid is sucked up from the container through a flexible
tube and a non return valve to the mouthpiece.

WO2008/1 30324 discloses a mobile hydration system comprising a
shirt/top having a back pocket designed to hold a fluid container in place dur-
ing use. The pocket arranged in the shirt/top is adapted to prevent the fluid
container from displacement. Generally, this is provided by the design of the
pocket and by means of the elastic material in the shirt/top and the pocket.

WO99/01045 discloses a sport shirt having an integrated water bag
with a flexible tube extending from the water bag towards a user. The flexible
tube is preferably provided with a bite nozzle for controlling the water flow.
The shirt and the pocket are designed to prevent the fluid container from be-
ing displaced which is achieved by means of the design of the pocket and by
means of the elastic material in the shirt and the pocket.
SUMMARY OF THE INVENTION

One object of the present invention is to provide a fluid container carrying device which is easy to use by a person during a motor sports activity or any other activity in which a helmet is used.

The present invention relates to a fluid container carrying device comprising a back piece and a front piece forming a pocket having an opening for receiving and holding a fluid container, characterised in that the fluid container carrying device further comprises a first strap and a second strap projecting from the pocket, wherein the first strap is provided with a first fastener for fastening to a first side portion of a neck protection device, the second strap is provided with a second fastener for fastening to a second side portion of the neck protection device, and a fastening means is arranged on the back piece of the pocket for fastening to a rear lower member of the neck protection device. Hence, the fluid container carrying device according to the invention can easily be fastened to a neck protection device, so that a person safely and comfortably can wear the fluid container carrying device and bring a fluid container for fluid replenishment during a motor sports activity.

The neck protection device is, for example, a motor sports neck protection device for a person wearing a helmet, which helps to bring the head of a person to a controlled stop, if necessary, to prevent injury. The neck protection device can comprise a rear lower member for engaging the back of a person, a front lower member for engaging the upper front chest of a person and a neck enclosing portion having side portions, so that extensive movement of a person's head can be prevented due to that the helmet movement is stopped by the neck enclosing portion and a force applied thereon is transferred to the body of the person through the front and rear lower members. The neck protection device is thus designed to help prevent extensive forward head movement, extensive rearward head movement, extensive sideways head movement and compression of the spinal column due to the effect of force on the helmet. The neck protection device can be designed as a neck brace system such as the Leatt-Brace™ or similar. The neck protection
device can be an injection moulded article of for example glass reinforced nylon or carbon fibre or similar materials forming a padded rigid structure acting as an alternate load path for forces applied to the neck. The side portions of the neck protection device can comprise hook and loop fasteners on the outer side, which hook and loop fasteners normally is used for fastening a padding or similar. Said hook and loop fasteners of the side portions can be used for fastening the fasteners of the straps of the fluid container carrying device according to the invention.

The fastening means of the fluid container carrying device can be formed as a loop for enclosing the rear lower member of the neck protection device, wherein the rear lower member is passed through the loop when the fluid container carrying device is mounted on the neck protection device. Alternatively, the fastening means can be arranged as a hook and loop fastener for fastening to the back of the rear lower member of the neck protection device. Hence, the fastening means in combination with the straps with the fasteners result in a safe fastening of the fluid container carrying device. The fasteners of the straps can be hook and loop fasteners for fastening to the side portions of the neck enclosing portion of the neck protection device. This results in a quick and easy fastening, wherein corresponding hook and loop fasteners of a padding of the neck protection device can be used to fasten the fluid container carrying device.

A fluid container can be arranged in the pocket and a flexible drink tube having a mouthpiece with a valve can be connected to the fluid container, so that a person can grip the mouthpiece, put it into the mouth and be replenished with fluid when opening the valve and then put the mouthpiece back into a storing position or simply let it go. A fluid in the fluid container, such as water, a sports drink or similar, can be pressurized, for example by means of a pump or manually by blowing air into the fluid container through the mouthpiece. If the fluid is pressurized it is pushed out through the drink tube when the valve of the mouthpiece is opened, so that a person can be replenished with a minimum of effort.
The fasteners can be hook and loop fasteners, such as Velcro™. For example, the fasteners are arranged as elongated strips of hook and loop fasteners arranged along the straps, respectively, for detachable fastening. Of course other types of fasteners can also be used, such as buttons, strings, etc.

Further characteristics and advantages of the present invention will become apparent from the description of the embodiments below, the appended drawings and the dependent claims.

SHORT DESCRIPTION OF THE DRAWINGS

The invention will now be described more in detail with the aid of embodiments and with reference to the appended drawings, in which

Fig. 1 is a schematic perspective view of a fluid container carrying device according to one embodiment of the invention, wherein the fluid container carrying device is fastened to a neck protection device and is provided with a drink tube connected to a fluid container arranged inside the fluid container carrying device,

Fig. 2 is a schematic side view of the fluid container carrying device according to Fig. 1,

Fig. 3 is a schematic front view of a fluid container carrying device according to one embodiment of the invention, showing a fluid container by means of dashed lines and a flap in a closed position,

Fig. 4 is a schematic front view of the fluid container carrying device according to Fig. 3, showing the fluid container by means of dashed lines and a flap in an open position,

Fig. 5 is a schematic back view of the fluid container carrying device according to one embodiment of the invention, and

Fig. 6 is a schematic back view of the fluid container carrying device according to one alternative embodiment of the invention.
DETAILED DESCRIPTION OF THE INVENTION

In Figs. 1 and 2 a fluid container carrying device 10 according to one embodiment of the invention is illustrated, wherein the fluid container carrying device 10 is fastened to a neck protection device 11. The neck protection device 11 is arranged to enclose the neck of a person wearing a helmet and to prevent injury due to excessive head movement as a result of an accident. The neck protection device 11 comprises a neck enclosing portion 12, through which a person can pass his head, for wearing the neck protection device 11. The neck protection device 11 further comprises a rear lower member 13 for engaging the back of a person, so that any forces received on the neck enclosing portion 12 from a moving helmet can be directed to the rear lower member 13 and distributed to the back of the person wearing the neck protection device 11. The neck protection device 11 further comprises a front lower member 14 for engaging the chest of a person, so that any forces received on the neck enclosing portion 12 from a moving helmet can be directed to the front lower member 14 and distributed to the chest of the person wearing the neck protection device 11.

The fluid container carrying device 10 is, for example, made of flexible fabric or similar. The fluid container carrying device 10 comprises a back piece 15 and a front piece 16 forming a pocket 17 having an opening 18 for receiving and holding a fluid container 19, which fluid container 19 is illustrated by means of dashed lines. The fluid container 19 is arranged for containing a fluid, such as water, sports drink or similar, and is connected to a flexible drink tube 20, so that a person can be replenished with fluid from the fluid container 19 through the drink tube 20.

The pocket 17 is provided with a flap 21 for closing the opening 18 of the pocket 17. For example, the opening 18 of the pocket 17 is an upper opening, so that the fluid container 19 can be inserted into the pocket 17 from above. The flap 21 is connected to the back piece 15 and is detachably fastened to the front piece 16 of the pocket 17. For example, the flap 21 is arranged centrally in the lateral direction over the opening 18 of the pocket 17. The flap 21 is provided with a through aperture 22 for the drink tube 20, so
that the drink tube 20 runs through the aperture 22. For example, the drink
tube 20 is fixed to the fluid container 19, wherein the fluid container 19 is ar-
ranged in a fixed position in the pocket 17 by means of the drink tube 20 run-
ning through the aperture 22 in the pocket flap 21.

The flexible drink tube 20 is provided with a mouthpiece 23, which is il-
lustrated in Fig. 2, and is connected to the fluid container 19 so that a person
can engage the mouthpiece 23 to obtain fluid from the fluid container 19. For
example, the fluid container 19 is formed in a plastic material, such as poly-
ethylene or similar. The flexible drink tube 20 is for example formed in a plas-
tic material, such as polyethylene or polyvinylchloride or similar. For example,
the flexible drink tube 20 is formed in polyethylene, wherein the fluid con-
tainer 19 is formed in another plastic material than polyethylene. For exam-
ple, the fluid container 19 is disposable to avoid risks and problems with bac-
teria and contamination. The plastic material used is for example recyclable
and emits only water and carbon dioxide upon combustion. According to one
embodiment, the fluid container 19 is arranged with a plurality of compart-
ments for stabilizing the fluid container. The fluid container 19 is for example
formed as a bag of two joined films of airtight or gasproof material. The drink
tube 20, for example, extends through a leak-proof tube outlet arranged cen-
trally in the container to a position in which one end is arranged close to the
bottom of the container. The seal between the drink tube 20 and the con-
tainer 19 around the flexible tube outlet prevents fluid leakage and makes it
possible to maintain a considerable positive pressure in the container 19.
Further, the two films are for example connected directly to each other in
elongated wall portions forming said compartments. The drink tube 20 pro-
jects from the container 19 and is provided with the mouthpiece 23, the
mouthpiece 23 being provided with a valve. The valve makes it possible to
blow in air to provide positive pressure in the container 19. The valve is also
used to open up for a fluid flow when the user wants to drink.

The fluid container carrying device 10 is arranged to be detachably
connected to the neck protection device 11, so that a person wearing the
neck protection device 11 easily and comfortably can bring a fluid container
19 with fluid during for example a motor sports activity. With reference par-
ticularly to Figs. 3-6 the fluid container carrying device 10 is illustrated ac-
cording to two different embodiments. The fluid container carrying device 10
comprises a first strap 24 and a second strap 25 projecting from the pocket
17. For example, the straps 24, 25 extend from an upper portion of the
pocket 17, i.e. from a position close to the opening 18 of the pocket 17. For
example, the straps 24, 25 extend upward and outward from the back piece
15, wherein the fluid container carrying device 10 is Y-shaped when disen-
gaged from the neck protection device 11 and spread out on a level surface.
For example, the first strap 24 is provided with loops 26 through which the
drink tube 20 can run for holding the drink tube 20 in position. Fig. 3 shows
the flap 21 in a closed position, in which the fluid container 19 is fixed in the
pocket 17, and Fig. 4 shows the flap 21 in an open position, in which the fluid
container 19 can be put in or brought out from the pocket 17.

With reference to Figs. 5 and 6 the first strap 24 is provided with a first
fastener 27 for fastening to a first side portion of the neck protection device
11, wherein the second strap 25 is provided with a second fastener 28 for
fastening to a second side portion of the neck protection device 11. For ex-
ample, the first and second fasteners 27, 28 comprise hook and loop fasten-
ers, such as Velcro™. Alternatively, the fasteners 27, 28 comprise buttons,
strings or similar means for detachably connecting the fluid container carrying
device 10 to the neck protection device 11.

The back piece 15 of the pocket 17 is provided with a fastening means
29, 30 for fastening to the rear lower member 13 of the neck protection de-
vice 11. According to the embodiment of Fig. 5, the fastening means is
formed as a loop 29. According to the embodiment of Fig. 6, the fastening
means is formed as hook and loop fastener 30, such as Velcro™.

With reference back to Figs. 1 and 2 it is illustrated that the straps 24,
25 are arranged for extending along a portion of the neck enclosing portion
12 of the neck protection device 11, towards the front thereof, so that the fas-
teners 27, 28 can be connected to the side portions of the neck enclosing
portion 12. Further the fastening means in the form of the loop 29 is arranged
to be passed over and enclose the rear lower member 13 for fastening the
fluid container carrying device 10 to the neck protection device 11. Alternatively, the fastening means in the form of a hook and loop fastener 30 is arranged to cooperate with a hook and loop fastener attached to the rear lower member 13. Hence, the fluid container carrying device 10 is arranged for enclosing the rear portion of the neck protection device 11. According to one embodiment of the invention, the fasteners 27, 28 are arranged to cooperate with a padding holding hook and loop fastener of the neck enclosing portion 12 of the neck protection device 11.

According Fig. 2 the drink tube 20 extends from the fluid container 19 and runs along the first strap 24 and the side portion of the neck enclosing portion 12 and is terminated with the mouthpiece 23 with the valve at the front lower member 14. As described above with reference to Figs. 3 and 4 the first strap 24 can be provided with loops 26 through which the drink tube 20 can run for holding the drink tube 20 in position. Hence, a person can retrieve the drink tube 20 and the mouthpiece 23 from its storing position at the front lower member 14 and put the mouthpiece 23 to the mouth for fluid replenishment and then put it back in its storing position again while performing a motor sports activity.

For example, the pocket 17 is formed in an elastic material and will be somewhat extended when a filled fluid container 19 is inserted therein. Hence, the pocket 17 will be extended, particularly in the lateral direction, and the fluid container 19 will be put under pressure. This pressure results in that the fluid in the fluid container 19 is exposed to an increased pressure. The increased pressure facilitates further when the user opens up the valve in the mouthpiece 23 and fluid is pushed out through the drink tube 20.

Fluid containers 19 according to the invention are suitably made of joined films of thin plastic material, which is approved for use with foodstuff. One suitable plastic material is ethylene plastic. Further, the material should be somewhat stretchable and relatively impermeable to gas or air, so that a positive pressure can be maintained during a normal period of use. The films are joined, for example by welding or heating, in a joint being circumferential except for the drink tube outlet.
CLAIMS

1. A fluid container carrying device (10) comprising a back piece (15) and a front piece (16) forming a pocket (17) having an opening (18) for receiving and holding a fluid container (19), characterised in that the fluid container carrying device (10) further comprises a first strap (24) provided with a first fastener (27) for fastening to a first side portion of a neck protection device (11), a second strap (25) provided with a second fastener (28) for fastening to a second side portion of the neck protection device (11), and a fastening means (29, 30) arranged on the back piece (15) of the pocket (17) for fastening to a rear lower member (13) of the neck protection device (11).

2. A fluid container carrying device according to claim 1, wherein the fastening means is a loop (29) for enclosing the rear lower member (13) of the neck protection device (11).

3. A fluid container carrying device according to claim 1, wherein the fastening means is a hook and loop fastener (30) for fastening to the rear lower member (13) of the neck protection device (11).

4. A fluid container carrying device according to any of the preceding claims, wherein the first fastener (27) and the second faster (28) are hook and loop fasteners for fastening to the side portions of the neck protection device (11).

5. A fluid container carrying device according to any of the preceding claims, wherein the pocket (17) is provided with a flap (21) having a through aperture (22) for a flexible drink tube (20).

6. A fluid container carrying device according to any of the preceding claims, wherein the first strap (24) is provided with drink tube holding loops (26) for holding a drink tube (20) in position.

7. A fluid container carrying device according to any of the preceding claims, wherein the first and second straps (24, 25) extend from an upper portion of
the pocket (17) when the device (10) is connected to a neck protection device (11) and are arranged with free end portions when disengaged from the neck protection device (11).

8. A fluid container carrying device according to any of the preceding claims, wherein a fluid container (19) is arranged in the pocket (17) and a flexible drink tube (20) having a mouthpiece (23) with a valve is connected to the fluid container (19).

9. A fluid container carrying device according to claim 8, wherein a fluid in the fluid container (19) is pressurized so that the fluid is pushed out through the drink tube (20) when the valve of the mouthpiece (23) is opened.

10. A fluid container carrying device according to any of the preceding claims, being connected to a motor sports neck protection device (11) comprising a rear lower member (13) for engaging the back of a person, a front lower member (14) for engaging the upper front chest of a person and a neck enclosing portion (12) having side portions.

11. Neck protection device (11) provided with a fluid container carrying device (10) according to any of claims 1-9.
### A. CLASSIFICATION OF SUBJECT MATTER

**IPC:** see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

- **IPC:** A41D, A45F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

**SE, DK, FI, NO classes as above**

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

### EPO-INTERNAL, WPI DATA, PAJ

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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### D

Further documents are listed in the continuation of Box C.

- [X] See patent family annex.

### Form PCT/IS A/210 (second sheet) (July 2009)
International patent classification (IPC)

A45F 3/20 (2006.01)
A41D 13/05 (2006.01)
A45F 3/16 (2006.01)

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