tedious and is therefore often mismanaged, resulting into a loss of compressed air, especially in the case of a mechanical closure with restoring. In addition, in this case, the wear over time of the restoring means causes a decrease of tightness provided by the valve.

In addition, it is not possible to know the quantity of stored compressed air, nor the pressure at the exit, without adding a pressure gauge to the cartridge. Such an addition requires an additional circuit, which inevitably leads to a loss of compressed air.

Furthermore, it is difficult to gauge the inflation of an equipment using such cartridges, so that in case of an inflation higher than the desired pressure, the compressed air must be expelled from the inflated equipment after having disconnected the cartridge.

The aim of the present invention is to cope with the drawbacks of the state of the art.

The invention is defined in the independent claim. Further embodiments of the invention are defined in the dependent claims.

Various embodiments relate to a compressed-air storage cartridge comprising a body, which is adapted for storing the compressed air, and a head, which is adapted for hermetically closing the body and which comprises a filling channel connecting a connecting orifice ending outside the cartridge to a filling orifice ending into the body, the filling channel comprising a filling non-return valve that prevents the compressed air from leaving the body, wherein the head comprises a inflation channel, which connects the filling channel to an inflation orifice ending into the body, which comprises an inflation non-return valve preventing the compressed air from leaving the body, and in which is movably mounted an inflating organ actuated by an inflation button and permitting the opening of the inflation non-return valve.

Thus, according to the disclosed technique, due to the presence of a filling channel, which ends into the body and which

comprises a filling non-return valve preventing the compressed air from leaving the body, and an inflation channel, which is different from the filling channel, which ends into the body and which comprises an inflation non-return valve preventing the compressed

the deflation button being in its resting position and the inflation button being in the second connecting position.

The present technique relates to a compressed-air storage cartridge 1.

Such a cartridge 1 comprises a body 2 and a head 3.

The body 2 may have any shape and, according to the preferred, non-restrictive embodiment, it has a cylindrical shape. The body 2 constitutes a tight casing forming internally a volume for receiving and storing compressed air. The tight casing has a single opening, which is located at the level of one end 4 of the body 2.

The head 3 has a shape similar to that of the body 2, and, according to the preferred, non-restrictive embodiment, it has a cylindrical shape with a peripheral diameter equivalent to that of the body 2.

The opening of the body 2 at the level of its end 4 is tightly closed by the head 3, which is fixed to the body 2. This fixing can be performed by any means, namely by screwing of an external thread provided for at the level of the periphery at one side of the head 3 cooperating with a complementary internal thread provided for internally in the wall at the level of the end 4. As can be seen in Figure 2, a connecting seal 5, preferably an O-ring, may be intercalated between the head 3 and the body 2 in order to improve the tightness of the fastening of these two elements. To this end, a peripheral connecting groove 50 is provided for around the head 3 at the level of the end aimed at cooperating with the body 2.

Advantageously, the head 3 constitutes an exchanger permitting the compressed air to circulate between the inside and the outside of the cartridge 1. In particular, the head 3 permits to fill the body 2 with compressed air, to know the quantity of compressed air in the body 2 and, when an inflatable equipment is connected to the head 3, to measure the pressure of the inflatable equipment, to deflate the inflatable equipment and to inflate it with compressed air contained in the body 2.

means 26 pushes the deflation organ 24 into the locked deflation position, the deflation non-return valve 27 moves from its open deflation position to its closed deflation position and interrupts the connection between the deflation connecting channel 28 and the filling channel 10. Figure 13 shows the head 3 with the deflation button 23 not being pressed, while Figure 14 represents it with the deflation button 23 being pressed.

In particular, the deflation non-return valve 27 is provided with a deflation ball, which is automatically pushed into a locking position, in which the connection between the deflation connecting channel 28 and the filling channel 10 is cut off. The second deflation end 245 has a flared deflation crown, which forms a seat for receiving the deflation ball, when pressing the deflation button 23, in order to move the deflation ball and permitting the compressed air to circulate.

A peculiarity of the disclosed technique resides in that this kind of displacement of the deflation ball permits to apply a force adapted for displacing the deflation non-return valve 27 into its open deflation position, even though the pressure the compressed air exerts onto it is important (for example of about 40 bar).

The inflation button 22 controls the communication between the filling channel 10, which the inflatable equipment is connected to (through the connecting hose 13 and the connecting orifice) and, on the one hand, the pressure gauge 15 and, on the other hand, the body 2, in order to control the flow of compressed air between the inflatable equipment and the pressure gauge 15, and eventually the body 2.

To this end, the inflation button 22 is movable between a resting inflation position as shown in Figure 15, a first connecting position as shown in Figure 16, and a second connecting position as shown in Figure 17.

When it is in its resting inflation position, the inflation button 22 is not pressed and the compressed air contained in the filling channel 10 (which communicates with the inflatable equipment) is confined therein.

permits to bring about a communication of the body 2 with the outside of the cartridge 1 and to thus perform a drainage of the body 2.

The passing and maintaining from one position to another of the inflation button 22 can be performed by means of a suitable system, in particular a ratchet, ensuring the locking in either position after pressing.

In connection with Figures 13 to 17, the compressed air is shown by the gray color.

According to the preferred embodiment, represented in the drawings, the body 2 has an internal volume of 220 milliliters, which is likely to contain up to 11 liters of compressed air at a pressure of 50 bar. The cartridge 1 comprising 50 bars of compressed air weighs about 280 g, it has a diameter of 4.5 cm and a height of about 20 cm, of which about 16 cm for the body 2.

According to conducted tests, the body 2 is resistant to an internal pressure of 80 bar.

Such a cartridge permits to accurately regulate the pressure of an inflatable equipment, thanks to the pressure gauge 15.

Alternatively, the cartridge 1 is adapted to cooperate with an air-compression device for a cycle, as described in patent application WO 2013/076429, for its filling with compressed air. The means for supplying the cartridge with compressed air can also be an electric compressor.

Thus, the cartridge 1 according to the disclosed technique permits to efficiently and accurately control, using a single device, the inflation and deflation of an equipment, while measuring the evolution of its internal pressure.

The cartridge 1 thus permits to inflate the wheels of a cycle, the usual pressure of which is of about 3 bar, the fork of a cycle, the usual pressure of which is of about 8 bar, the dampers of a cycle, the usual pressure of which is generally between 15 and 25 bar. It also permits, thanks to the large flow rate of compressed air it releases, to fit a tubeless tire ("tubeless").

CLAIMS

1. A compressed-air storage cartridge (1) comprising a body (2), which is adapted for storing the compressed air, and a head (3), which is adapted for hermetically closing the body (2) and which comprises a filling channel (10) connecting a connecting orifice ending outside the cartridge (1) to a filling orifice ending into the body (2), the filling channel (10) comprising a filling non-return valve (11) for preventing the compressed air from leaving the body (2), wherein the head (3) comprises an inflation channel (31), which connects the filling channel (10) to an inflation orifice ending into the body (2), which comprises an inflation non-return valve (32) for preventing the compressed air from leaving the body (2), and in which is movably mounted an inflating organ (30) adapted to be actuated by an inflation button (22) and for permitting the opening of the inflation non-return valve (32).

2. The cartridge (1) according to claim 1, wherein the filling non-return valve (11) is configured to be open when the pressure from a compressed-air supply means to be connected to the connecting orifice is higher than the pressure in the body (2).

3. The cartridge (1) according to one of claims 1 and 2, wherein the head (3) comprises an inflation springy restoring means (33) arranged to push said inflating organ (30) into a locked inflation position, in which the inflation non-return valve (32) prevents the compressed air from exiting the body (2).

4. The cartridge (1) according to one of claims 1 to 3, wherein the head (3) comprises a pressure gauge (15) connected to the filling channel (10) while passing through a valve (30) controlled by a button (22).

5. The cartridge (1) according to claim 4, wherein the valve (30) is formed by said inflating organ (30) and the button (22) is formed by the inflation button (22).

6. The cartridge (1) according to claim 5 depending on claim 3, wherein the cartridge (1) is arranged for the compressed air

contained in the filling channel (10) to reach the pressure gauge (15) when said inflating organ (30) reaches a position of connection to the pressure gauge (15) located between the locked inflation position and a position from which the inflation non-return valve (32) is open.

7. The cartridge (1) according to claim 6, wherein the cartridge (1) is arranged for the compressed air contained in the filling channel (10) to reach the pressure gauge (15) when said inflating organ (30) reaches a position in which the inflation non-return valve (32) is open.

8. The cartridge (1) according to one of claims 1 to 7, wherein the head (3) comprises a deflation channel (25), which connects the filling channel (10) to an orifice ending outside the cartridge (1), which comprises a deflation non-return valve (27) for preventing the compressed air from exiting the cartridge (1), and in which is movably mounted a deflation organ (24) adapted to be actuated by a deflation button (23) and for permitting the opening of the deflation non-return valve (27).

9. The cartridge (1) according to claim 8, wherein the head (3) comprises a springy deflation restoring means (26) arranged to push the deflation organ (24) into a position in which the deflation non-return valve (27) prevents the compressed air from exiting the cartridge (1).

10. The cartridge (1) according to one of claims 8 and 9, wherein the inflation button (22) and the deflation button (23) can be actuated simultaneously.

11. The cartridge (1) according to one of claims 1 to 10, wherein the head (3) comprises a pressure indicator (7) for permitting to know the quantity of compressed air in the body (2).

12. The cartridge (1) according to one of claims 1 to 11, wherein the head (3) comprises a safety valve adapted to open when the pressure prevailing in the body (2) reaches a safety value.