J. DE STEFANO
COMBINATION DUST CAP AND VALVE
CAP LOCK FOR TIRE VALVES
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Inventor

John De Stefano

Inventor

By

Attorneys
My invention relates to combination dust caps and valve cap locks for the valves of pneumatic tires and is designed as an improvement over the valve cap lock of my U. S. Letters Patent No. 2,293,808, dated August 25, 1942. By way of explanation, in the valve cap lock of my above noted patent, a two part dust cap is provided on the valve stem with one section rotatable on the stem and a detachable section adapted to be screwed tight on the rotatable section against detachment except by means of tools for holding the rotatable section stationary and unscrewing of the detachable section. This arrangement providing for the rotatable section when the valve cap by persons not cognizant of the operations required for detaching the detachable section, nor, equipped with the proper tools. This dust cap is on the valve stem by the usual valve cap and when the detachable section of the dust cap is detached and the valve cap removed, the rotatable section may accidently become detatched from the valve stem and lost.

Having the foregoing in mind, it is the primary object of the instant invention to provide for securing the dust cap of my above noted patent on the valve stem of a tire independently of the valve cap and so as to prevent loss of the rotatable section when the valve cap is removed. Another object is to provide improved means for hermetically sealing the valve closed through the use of such a dust cap.

Still another object is to eliminate, in using such a dust cap, the usual valve cap and substitute therefore a more efficient closure for the valve removal by detaching the detachable section of the dust cap.

Other and subordinate objects, also comprehended by my invention, together with the precise nature of my improvements and the advantages thereof, will be readily understood when the succeeding description and claims are read with reference to the drawing accompanying and forming part of this specification.

In said drawings:

Figure 1 is a fragmentary view in vertical section, with parts shown in side elevation, of a preferred embodiment of my invention;

Figure 2 is a view in transverse section taken on the line 2—2 of Figure 1;

Figure 3 is a view in perspective of the spring washer;

Figure 4 is a fragmentary view in vertical section, with parts shown in side elevation, of a modified embodiment of my invention;

Figure 5 is a view in transverse section taken on the line 5—5 of Figure 4. Referring now to the drawing by numerals, and first to Figures 1 to 3 thereof, in the preferred embodiment of my invention, the usual tire valve stem 1, as in the case of my previously noted patent, is encased, to the outer threaded end of the stem, in an outwardly tapering sheath 2 of rubber or the like, preferably formed on the tube, not shown, and the dust cap 3 comprises an internally flared, metallic, sleeve section 4 rotatably fitted on the sheath 2 with a reduced, externally threaded, outer end 5 on which is threaded a detachable, hollow, cylindrical section 6 of said dust cap.

According to the instant invention, an internal, outer end, flange 7 is provided in the rotatable section 4 fitting with a clearance around the outer threaded end of the valve stem 1 and resting on the outer end of the sheath 2 for a purpose presently seen.

A spring washer 8, of the type shown in Figure 3, is provided on the outer end of the valve stem 1 between the flange 7 and a nut 9 on said end of said stem 1 backed by a lock nut 10 on said end of said stem. The nuts 9, 10 are set so that the spring washer 8 imposes sufficient tension against the flange 7 to cause said flange and the rotatable section 4 to frictionally grip the sheath 2, while permitting rotation of the dust cap 3 about said sheath.

A closure cap 11 is provided for the outer end of the valve stem 1 comprising a relatively larger diameter rubber disk 12 backed by a metal disk 13 with right angled edge tongues 14 gripping the edge of said disk 12 and securing said disks 12, 13 together. Outstanding tongues 15 on the metal disk 13, alternating with the right angled tongues 14, fit in the detachable sections 5 and center the closure cap 11 in said detachable section while frictionally retaining the same in said section.

A spring washer 16, in the detachable section 6, similar to the washer 7, and interposed between the outer end of said section and the closure cap 11 seats the rubber disk 12 against the outer end of the valve stem 1 as said section 6 is turned onto the reduced end 5 of the rotatable section 4 and permits the detachable section 5 to be turned tight on the rotatable section 4 without crushing said disk 12.

As will now be seen, in the described embodiment of the instant invention, the dust cap 3 is held on the valve stem 1, considering the sheath 2 as part of said stem, by the flange 7, the spring
washer 8, and the nuts 9, 10, and the closure cap 11 for the valve stem 1 is held in closing position by the spring washer 16 and the detachable section 6 of the dust cap 3, so that said detachable section 6 may be detached to remove the closure cap 11 therewith, while the rotatable section 4 is securely held in place against being lost. At the same time, the dust cap 3 is free for rotation about the valve stem 1 to frustrate detachment of the detachable section 6 and access to the closure cap 11 by persons not having at hand the necessary tools. Thus, the dust cap 3 frustrates stealing of the closure cap 11 and operation of the valve to deflate the tire, by unauthorized persons.

In the modified embodiment of the instant invention illustrated in Figures 4 and 5, the usual valve cap 17 is utilized on the valve stem 18 and is adapted to be turned tight against a nut 19, corresponding to the nut 8 of the preferred embodiment, said cap 17 thereby functioning both as a lock nut for the nut 19, and also as a closure for the valve stem 18. The valve cap 17 is held in place solely by turning the same onto the stem 18 against the nut 19. Otherwise the construction is the same as in the preferred embodiment of the invention.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, without further explanation.

Manifestly, the invention, as described, is susceptible of modification, without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

What I claim is:

3. A tire valve stem, a dust cap comprising a sleeve section surrounding said stem and a hollow section detachably threaded onto said sleeve section and enclosing the outer end of said stem, means for rotatably securing the sleeve section on said stem against displacement, and a closure cap in said detachable section for closing said stem, said means imposing tension against said sleeve section to cause the same to frictionally resist rotation.

4. A tire valve stem, a dust cap comprising a sleeve section surrounding said stem and a hollow section detachably threaded onto said sleeve section and enclosing the outer end of said stem, means for rotatably securing the sleeve section on said stem against displacement, and a closure cap in said detachable section for closing said stem, said means imposing tension against said sleeve section to cause the same to frictionally resist rotation, said closure cap being removable by detachment of said hollow section.

5. A tire valve stem, a dust cap comprising a sleeve section surrounding said stem and a hollow section detachably threaded onto said sleeve section and enclosing the outer end of said stem, means for rotatably securing the sleeve section on said stem against displacement, and a closure cap in said detachable section for closing said stem, means imposing tension against said sleeve section to cause the same to frictionally resist rotation, said closure cap being removable by detachment of said hollow section.