A. L. JUST.

DUST CAP.

APPLICATION FILED SEPT. 20, 1919.

1,322,905. Patented Nov. 25, 1919.

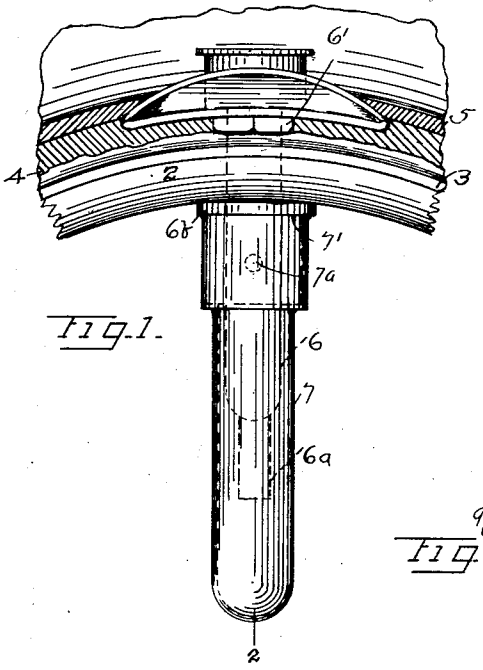


Fig. 1.

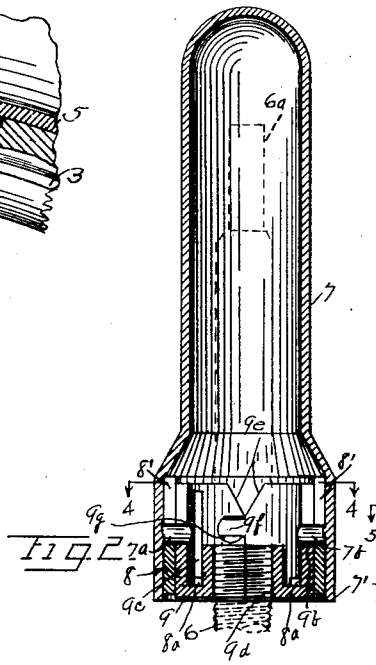


Fig. 2.

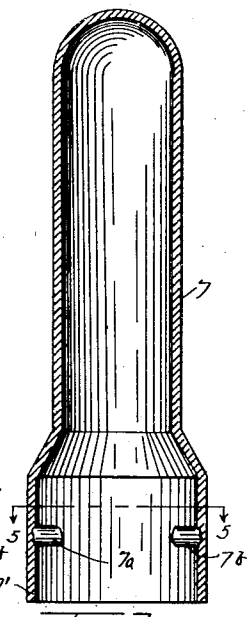


Fig. 3.

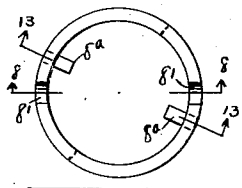


Fig. 6.

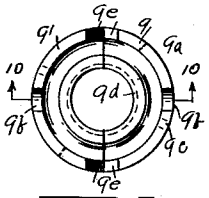


Fig. 7.

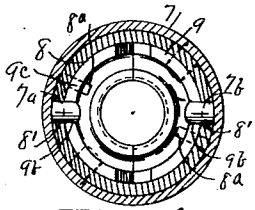


Fig. 4.

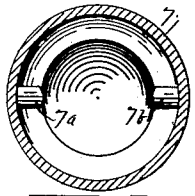


Fig. 5.

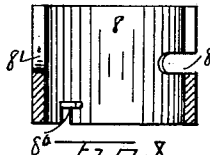


Fig. 8.

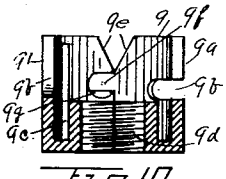


Fig. 10.

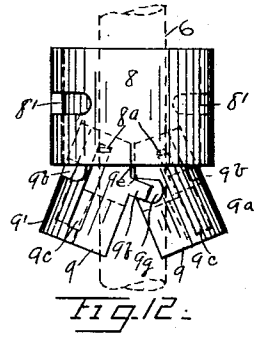


Fig. 12.

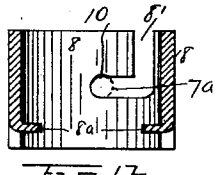


Fig. 13.

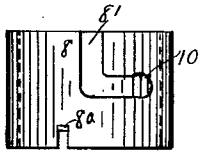


Fig. 9.

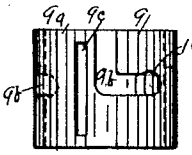


Fig. 11.

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UNITED STATES PATENT OFFICE.

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DUST-CAP.

1,322,905. Specification of Letters Patent. Patented Nov. 25, 1919.

Application filed September 20, 1919. Serial No. 325,098.

To all whom it may concern:

Be it known that I, ALVAH L. JUST, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Dust-Caps, of which the following is a specification.

This invention relates to improvements in dust-caps, and has for its object to provide novel and simple means for protecting the valve stems of pneumatic tires and the like. A particular object is to provide a dust-cap which may be readily and quickly attached to and detached from the threaded valve stem without requiring the cap to be screwed and unscrewed in a tedious manner during the said operations. And a further object is to provide novel and simple means for locking the dust-cap in the closed position, as well as for rendering the joint between the dust-cap, the valve stem and the felly of the wheel water-proof.

I attain these objects by the means set forth in the detailed description which follows, and as illustrated by the accompanying drawing, in which—

Figure 1 is a fragmentary section of a wheel and its pneumatic tire, to which my improvement is applied. Fig. 2 is an inverted central longitudinal section, taken on line 2 of Fig. 1. Fig. 3 is a similar view of the dust-cap alone. Fig. 4 is a horizontal section, taken on line 4—4 of Fig. 2. Fig. 5 is a similar section taken on line 5—5 of Fig. 3. Fig. 6 is an end view of the shell or sleeve which incloses the split nut. Fig. 7 is an end view of the split nut. Fig. 8 is a central section taken on line 8—8 of Fig. 6. Fig. 9 is a side view of the shell. Fig. 10 is a central section taken on line 10—10 of Fig. 7. Fig. 11 is a side view of the split nut. Fig. 12 is a view showing the nut split and partially extended from the shell. And Fig. 13 is a central section taken on line 13—13 of Fig. 6.

In the drawing, 2 is the felly of a wheel; 3 is the usual metal rim; 4 is the outer shoe of the tire, and 5 is the inner or pneumatic tube. 6 is the threaded valve stem, which passes loosely through the several parts of the wheel and tire, and is held in place on the tube 5 by a nut 6′. The valve stems 6 are usually externally threaded substantially their full length, and their outer ends comprise reduced nipples 6^a, to which an air-pump may be connected in a well-known manner for inflating the tube 5. The stem 6 after passing loosely through the rim and felly of the wheel, projects some distance beyond the felly, and this portion of the stem is usually protected by a hollow tubular dust-cap, having one open end which is usually internally threaded, and to apply and remove these old dust-caps, they are generally screwed the full length of the projecting ends of the valve stems. These operations usually require many turns of the caps in order to bring them to a stop against the felly of the wheel, so as to properly exclude the dust and water. These operations not only consume considerable time, but as the valve stems are invariably positioned between adjacent closely disposed spokes of the wheel, the spokes greatly interfere with the convenient and rapid turning of the caps. In the present invention, the threads are omitted from the dust-cap 7, and in lieu thereof, the open end 7′ is enlarged, and its opposite inner sides are provided with radial pins 7^a and 7^b, which aline axially, and which engage similar L-shaped slots 8′ of a shell or sleeve 8, which slidably telescopes the end 7′ of the cap, for locking the cap in the closed position. 9 represents generally a split nut, comprising half-sections 9′ and 9^a, which slidably telescope the sleeve 8, the said sections having corresponding L-shaped slots 9^b, which also receive the pins 7^a—7^b of the cap and coöperate with the shell for locking the cap in place. The shell 8 is provided with similar inturned lugs 8^a at its lower ends, which engage corresponding longitudinal slots 9^c of the sections of the nut. By this construction and arrangement the nut and sleeve may be extended, as shown in Fig. 12, but cannot become entirely separated. The lugs 8^a and the slots 9^c also serve to bring the slots 8′ and 9^b of the shell and nut into true registry when the parts are closed up, as shown in Figs. 2 and 4. The inner circumference 9^d of the nut is threaded and engages the threads of the valve stem for securing the cap in the closed position. The upper corners of the sections 9′ and 9^a of the nut are correspondingly cut away and beveled, as at 9^e, so as to allow their lower ends to be spread apart while their upper ends are still within the sleeve, for freeing the threads 9^d from the threads of the stem of the valve (see Fig. 12). In order to prevent the sections 9′ and 9^a from spreading too widely, each sec-

tion is provided with a circumferential tongue 9^f, which plays in a slot 9^g of the adjacent section, as best seen in Figs. 2, 10 and 12. These tongues and slots also serve to aline the threads 9^d when the nut is forced back into the sleeve for clamping it against the stem 6, as shown in Fig. 2.

The operation of my improved dust-cap is as follows: When a new tire is placed on the wheel and the valve stem 6 is inserted through the felly 2, the operator slips a compressible washer 6^b over the stem until it bears against the face of the felly. He next takes the sleeve and nut and extends and spreads the latter, as shown in Fig. 12. He then slips the nut and sleeve over the free end of the stem 6 until the nut engages the washer 6^b. The sections of the nut are then closed against the threads of the stem by forcing the sleeve 8 over the nut, as shown in Fig. 2. The latter operation securely clamps the nut 9 to the stem 6, and also brings the L-shaped slots of the nut and sleeve into register. The next operation consists of slipping the cap 7 over the free end of the stem 6 until the pins 7^a and 7^b enter the L-shaped slots of the nut and sleeve. The cap 7 is then given a slight turn toward the right for screwing the nut tightly against the washer 6^b, for sealing the joint between the stem 6 and the felly, and finally the cap 7 is given a partial turn toward the left, for positioning the pins 7^a—7^b in shallow sockets 10 at the closed ends of the L-shaped slots (see dotted lines Figs. 4 and 13), which locks the cap in the closed position without loosening the nut. The open end of the cap 7 is then held tightly against the compressible washer 6^b whose spring or resilience tends to hold the cap from accidental release from the sockets 10, as well as for preventing water from entering the cap (the sockets 10 are only shown in Figs. 9, 11 and 13). To release and remove the cap for allowing the tire to be pumped up, the driver simply grasps the body of the cap 7 with one hand and turns it toward the right until the pins 7^a—7^b again register with the open ends of the L-shaped slots, after which he moves the cap endwise until it is free from the sleeve 8 and also from the valve stem 6. The sleeve and nut need not again be disturbed until a new tube or tire is installed on the wheel.

Having thus described my invention, what I claim is—

1. The combination with a hollow dust cap having radial pins near its open end, of a split nut internally threaded for engaging the threads of a valve stem, the sections of said nut provided with slots adapted to receive said pins and having circumferential tongues and slots for limiting the spreading of said sections, and a sleeve inclosing said nut and telescoping the open end of said cap, said sleeve having corresponding slots to receive said pins and having lugs for limiting the longitudinal movement of said nut relatively to said sleeve.

2. In means for locking dust caps to valve stems, the combination with a dust cap having oppositely facing pins near its open end, of a split nut having internal threads for engaging a valve stem, each section of said nut having an L-shaped slot the closed end of which is provided with a socket for retaining said pins, and having a tongue and a slot for preventing said sections from spreading too widely, and a shell surrounding said nut and slidable thereon, said shell having L-shaped slots provided with sockets which register with the corresponding slots in said nut, and said shell having inturned lugs for preventing the detachment of said nut from said shell.

3. In a dust-cap for valve stems, the combination with a hollow cylindrical cap having an open end, the said end provided with oppositely facing radial pins, of a sleeve telescoping the open end of the cap, said sleeve having L-shaped slots engaged by said pins and having inturned lugs in its opposite sides, and a split nut telescoping said sleeve, the inner circumference of said nut being threaded, said nut having longitudinal slots engaged by said lugs, the corresponding corners of the sections of said nut cut-away to permit the spreading of said nut, each section of said nut having a tongue which plays in a notch in the other section, and each of said sections having an L-shaped slot which registers with the corresponding slot of the said sleeve.

In testimony whereof I affix my signature.

ALVAH L. JUST.