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A. L. FREEDLANDER

1,473,032

DUST CAP

Filed March 13, 1922

Fig. 1.

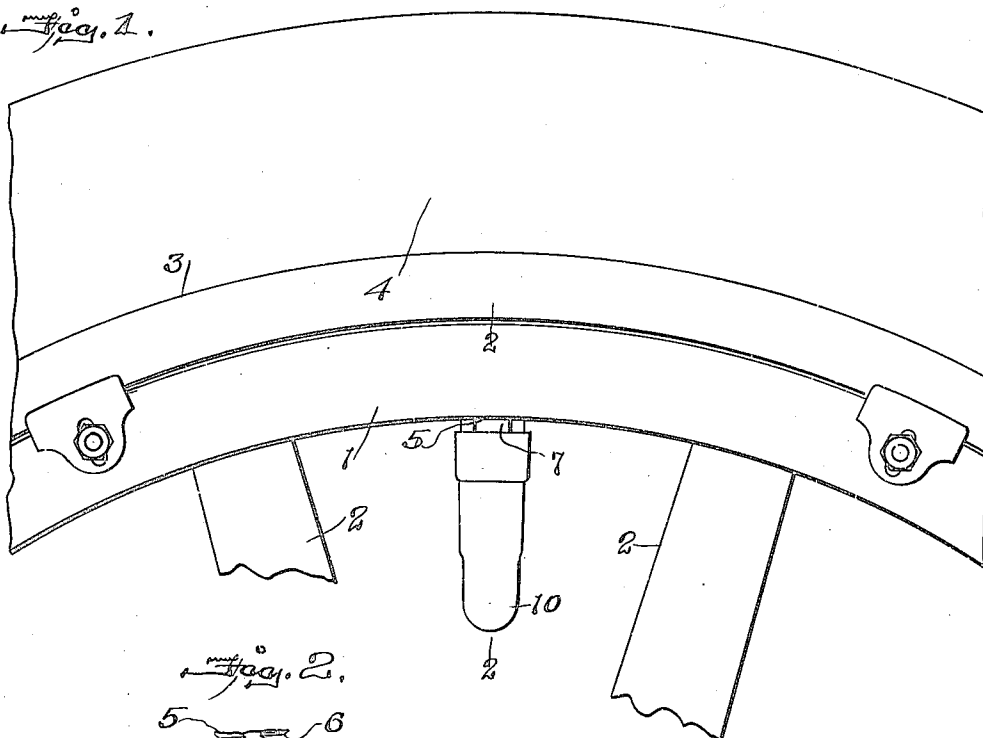


Fig. 2.

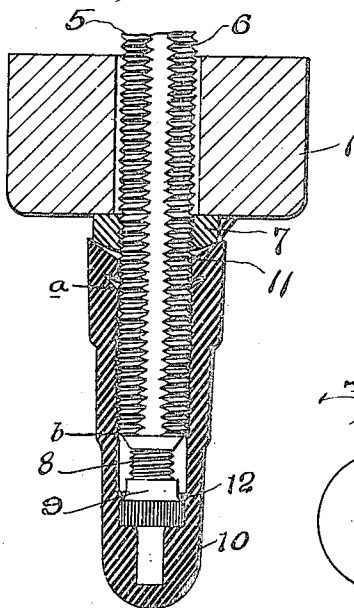


Fig. 3.

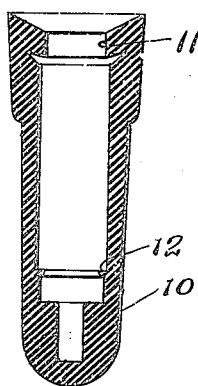
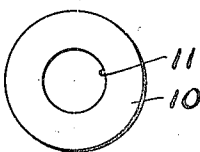


Fig. 4.



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UNITED STATES PATENT OFFICE.

ABRAHAM L. FREEDLANDER, OF DAYTON, OHIO, ASSIGNOR TO THE DAYTON RUBBER MANUFACTURING COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

DUST CAP.

Application filed March 13, 1922. Serial No. 543,332.

To all whom it may concern:

Be it known that I, ABRAHAM L. FREEDLANDER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Dust Caps, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to dust caps for the valve tubes of pneumatic tires.

The invention consists of a dust cap formed of a composition of rubber and constructed with a tubular body having at its open end an integral inclined flange adapted to firmly grip the valve tube to seal such end of the cap to prevent entrance of dust and moisture and to aid in preventing the dislodgment of the cap, and adapted in the body portion to have its interior fully occupied by the valve tube and to grip the threads of the tube to further insure against the dislodgment of the cap except when drawn off by the hand, which may be done due to the yieldability of the rubber.

In the accompanying drawings:

Fig. 1 is an elevation of a portion of a wheel rim having a tire, a conventional air valve tube and my improved cap applied thereto;

Fig. 2 is an enlarged sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a detail view of my improved dust cap in longitudinal section; and

Fig. 4 is an end view of the base of the cap.

The conventional wheel rim is indicated at 1, with spokes 2, a detachable ring 3 and a tire 4, with a valve tube 5 extending through the rim and connected (not shown) in any approved or the usual manner with an inner tube, (also not shown). This valve tube has an exterior thread 6 with a binding nut 7 which abuts the rim 1. This tube also has a reduced threaded neck 8 over which is screwed the usual valve cap 9. All of these features are of any of the types now commonly in use.

Referring now more directly to my improved rubber dust cap the same is designated generally by the numeral 10. It consists of a tubular body closed at one end and open at the other. At the open end it is provided with a sealing and gripping flange 11 which inclines inward so that when

the cap is slipped over the valve tube 6 the flange will yield somewhat to facilitate the sliding movement, whereas any tendency of the cap to slide off is resisted by this flange because of the tendency of such a movement to spring the flange in the reverse direction and cause it to tend to expand the body of the cap. In this way the cap is in part held from dislodgment except when taken hold of by the hand and pulled with sufficient force to overcome the gripping tendency of the flange. In this way the flange forms a sealing and gripping element. Its sealing function is to exclude moisture, dust and dirt from entering the cap and ultimately finding its way into the tube 6, as when the valve cap 9 is removed.

A further feature of my dust cap is the gripping wall formed along the interior from the point *a* to the point *b*. The bore of the cap is such that it is normally slightly smaller than the diameter of the tube 6. When forced over the tube it is slightly expanded which causes a faint bulging of the wall from the point *b* inward. The resistance of the rubber to this action of expansion causes it to intimately hug the valve tube and thus add another gripping element for the retention of the dust cap in place.

The interior of the cap is further fashioned to receive the valve cap 9 by its bore corresponding in shape and size therewith. A shoulder 12 on the interior of the dust cap engages the head of the valve cap and adds a further retaining feature. As the dust cap is slipped on and off the rubber permits the shoulder 12 to yield and go in past the dust cap.

It will now be seen that my improved dust cap comprises a hollow tubular or rubber body with a sealing and gripping flange, a gripping body portion, as between the points *a* and *b*, and a retaining shoulder, as at 12; that it is made of a rubber compound which affords strength and toughness but sufficient elasticity to enable the cap to function in the manner I have described with respect to gripping and yet sliding off and on of the valve tube.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A rubber dust cap for pneumatic valve tubes comprising a hollow body with a sealing and gripping flange, said gripping flange

being defined from the body of the dust cap by a slit extending outwardly from the bore of the dust cap toward its periphery, and a gripping body portion.

5 2. A rubber dust cap for pneumatic valve tubes comprising a hollow body having a sealing and gripping flange inclined in position, said gripping flange being defined from
10 body of the dust cap by a slit extending outwardly from the bore of the dust cap toward its periphery, a gripping body portion and a retaining shoulder.

3. A rubber dust cap for pneumatic valve tubes comprising a hollow body closed at one
15 end and open at the other and having a gripping and sealing flange near the open end defined from the body by a slit extending outwardly from the bore of the body and being a bore normally less in diameter than
20 the valve tube to which it is to be applied to form a gripping body portion when said portion is expanded by the forced entrance therein of the valve tube.

4. The combination with a valve tube and
25 its valve cap, of a rubber dust cap compris-

ing a hollow body closed at one end, open at the other and having a sealing and gripping flange near the open end defined from the body by a slit extending outwardly from the bore of the body and being formed with a
30 hollow interior substantially the counterpart of the valve tube and valve cap, a part of such interior being normally of diameter slightly less than the diameter of the corresponding part of said tube.

5. The combination with a valve tube and its valve cap, of a rubber dust cap comprising a hollow body closed at one end, open at the other and having a sealing and gripping
40 inclined flange near the open end defined from the body by a slit extending outwardly from the bore of the body and being formed with its interior substantially a counterpart of said tube and valve cap, the
45 normal diameter of a portion of the interior being slightly less than the corresponding portion of the valve tube and having a retaining shoulder adjacent the valve cap.

In testimony whereof I affix my signature.

ABRAHAM L. FREEDLANDER.