

J. L. MAITLAND.
PNEUMATIC TIRE.
APPLICATION FILED FEB. 6, 1908.

939,428.

Patented Nov. 9, 1909.

Fig. 1.

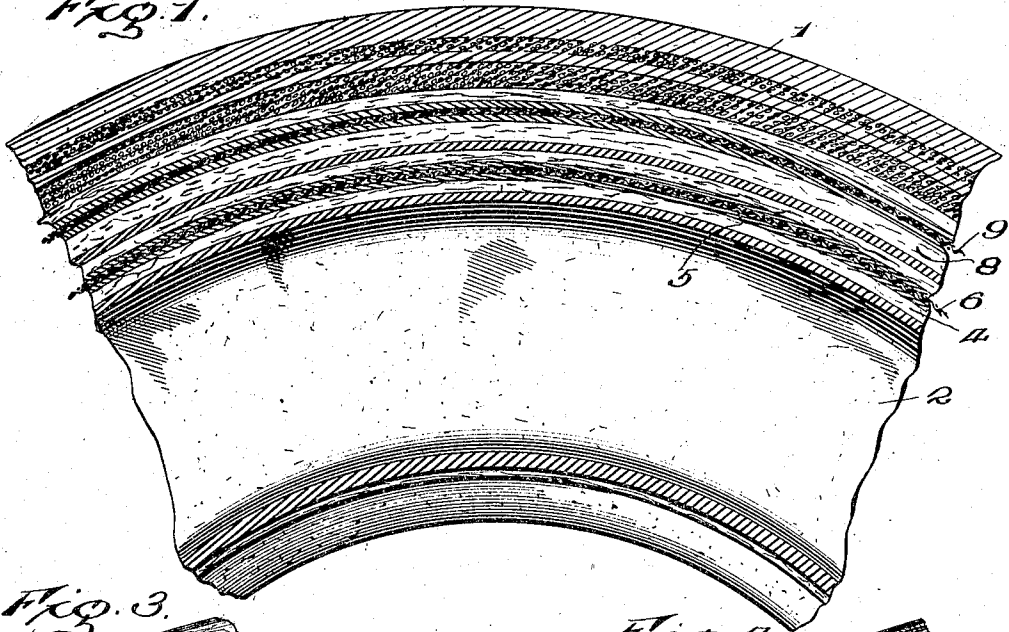


Fig. 3.

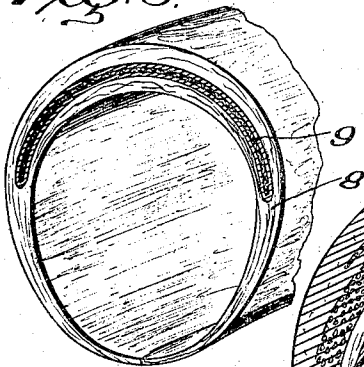


Fig. 4.

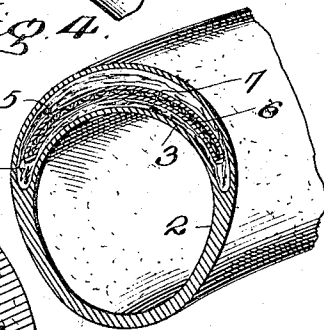
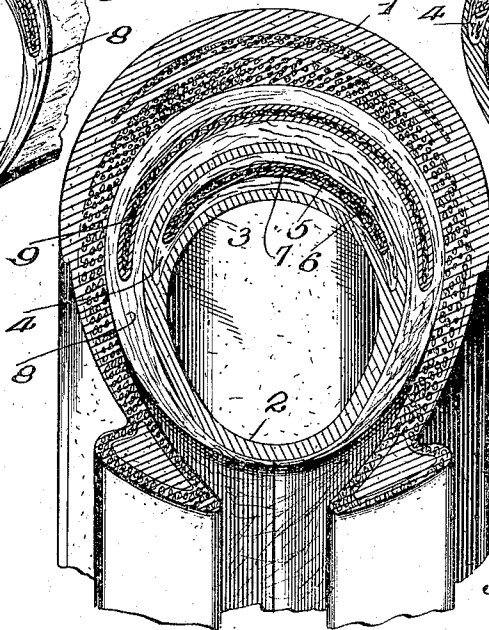


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES L. MATTLAND, OF PASSAIC, NEW JERSEY, ASSIGNOR OF ONE-THIRD TO WILLIAM A. CALLANAN, OF JERSEY CITY, NEW JERSEY, AND ONE-THIRD TO CHARLES RIDER, OF MOUNTAINVILLE, NEW JERSEY.

PNEUMATIC TIRE.

939,428.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES L. MATTLAND, a subject of King Edward VII of Great Britain, residing at Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Pneumatic Tires, of which the following is a specification.

This invention provides a novel form of tire which is practically puncture proof and self-healing should the shoe and inner tube be pierced.

The invention aims to supply a tire of the character aforesaid which will be comparatively light, durable and lasting and which will not heat and blow out.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a central longitudinal section of a portion of a pneumatic tire embodying the invention. Fig. 2 is a cross section of the tire. Fig. 3 is a detail perspective view of a portion of the protective layer arranged between the inner tube and the shoe. Fig. 4 is a detail perspective view of a portion of the inner tube.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The shoe or casing 1 may be of any pattern or make generally employed in the formation of pneumatic tires for automobiles and kindred road machines. The shoe or casing illustrated is of the clencher type, that is, it is open upon the rim side, the edge portions bordering upon the opening being constructed to interlock with the rim so as to hold the shoe or casing closed when subjected to internal pressure, as when inflated.

The inner tube 2 is provided adjacent its tread portion with a partition 3, which

curves outward between its longitudinal edges. A filling 4 is interposed between the partition 3 and the opposing tread portion of the tube 2. This filling is approximately of crescent form in transverse section, that is, its middle portion is thickened and it tapers uniformly from a middle point toward the outer edges.

The filling 4 consists of a strip of felt or like fibrous material compressed into the required shape. A protector 5 is embedded centrally within the filling 4 and in outline is of crescent form and consists of a metal strip 6 and a cover 7 enveloping the same. The metal strip 6 is formed preferably of closely meshed wire fabric and the covering 7 is of asbestos or mineral wool. The metal strip 6 is intended to arrest the progress of any object penetrating the shoe and tending to pierce the inner tube, whereas the covering 7 being of refractory material prevents the heating of the tire by reason of its heat resisting qualities. To further increase the resisting qualities of the tire, both against the action of heat and of the penetration by sharp objects, the protective layer 8 is interposed between the inner tube and the shoe or casing, said protective layer completely enveloping the inner tube and being approximately of crescent form in transverse section and arranged with its middle or thickest portion adjacent to the tread portion of the tire.

The protective layer 8 is of felt or compressed fibrous material and is provided at a central point with a protecting strip 9 constructed in a manner similar to the protector 5, that is, it is composed of a metal strip and a covering of asbestos or mineral wool. The protecting strip 9, like the protector 5 is of crescent form in transverse section. It will be observed that by reason of the provision of a multiplicity of layers between the tread surface of the shoe or casing and the opposing portion of the inner tube 2, the latter is practically rendered invulnerable because the chances for the same being penetrated by a sharp object are exceedingly remote. The interposition of the protective means between the shoe and the inner tube prevents the tire from heating, thereby overcoming the objectionable feature of blowing out of the tire which is the frequent source of annoyance and expense.

particularly when making a long tour or operating the machine for any great length of time. It is further noted that the protective strip 9 is separate from the shoe and the inner tube, hence may be used repeatedly or replaced independently of the parts 1 and 2, thereby enabling repairs to be made at a minimum expense.

Having thus described the invention, what is claimed as new is:

In a pneumatic tire, an outer split tube of the clencher type having layers of fabric embedded therein and extending around the inner surface thereof, an inner tube located within the outer tube, of smaller external diameter than the internal diameter of the outer tube and therefore spaced therefrom, said inner tube having double spaced walls in its tread portion and its sides, which walls merge into each other along the inner circumference of the inner tube and thereby inclose a crescent-shaped space, a crescent-shaped solid filling of felt permanently

placed within said space, contiguous sheets of wires and asbestos inserted in said felt filling and extending across the tread portion of the tire and partially around the side portions of the filling, and a removable, independent, intermediate, protective pad of felt entirely inclosing the inner tube, said pad tapering uniformly from its middle to its edges and being therefore crescent-shaped in section, said felt pad being provided with an internal heat- and puncture-resisting layer embedded therein, consisting of contiguous sheets of asbestos and wire fabric, said protective layer in the felt pad extending around and inward beyond the protective layer of asbestos and wire forming the core of the inner tube.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES L. MAITLAND. [L. S.]

Witnesses:

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