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PATENTED JUNE 4, 1907.

J. J. P. LE GRAND.
PROTECTIVE COVER FOR PNEUMATIC OR ELASTIC TIRES.
APPLICATION FILED NOV. 13, 1905.

Fig. 1

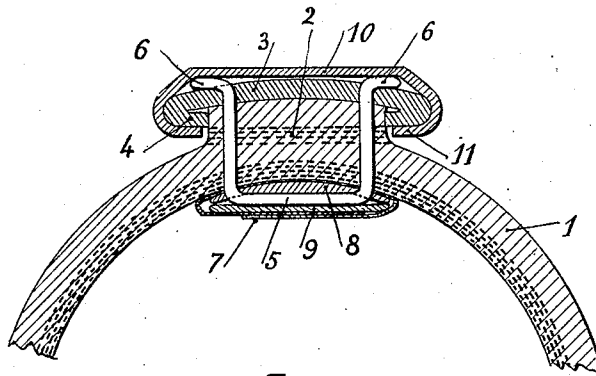
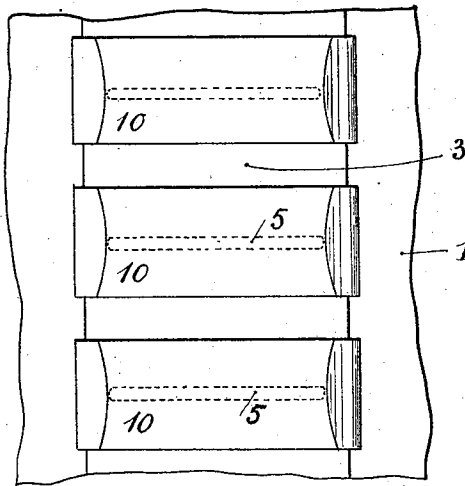


Fig. 2



Inventor

Jean Jérôme Paul Le Grand
By his attorney

A. Mackay

Witnesses

Mathew B. Chivers
Agnes E. Seavey

UNITED STATES PATENT OFFICE.

JEAN JÉRÔME PAUL LE GRAND, OF PARIS, FRANCE.

PROTECTIVE COVER FOR PNEUMATIC OR ELASTIC TIRES.

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Specification of Letters Patent.

Patented June 4, 1907.

Application filed November 13, 1905. Serial No. 287,198.

To all whom it may concern:

Be it known that I, JEAN JÉRÔME PAUL LE GRAND, residing in Paris, France, 53 Avenue des Ternes, have invented certain new and useful Improvements in Protective Covers for Pneumatic or Elastic Tires.

This invention relates to a protective cover for pneumatic tires or for solid elastic tires, in which the cover is formed of a flat belt or band for the tread, armed with metal plates which are fixed upon the band by their recurved edges.

It has for its object a method of fixing the band to the cover by means of studs formed of curved pins which pass through the cover of the pneumatic tire or the solid tire, and the band, so as to bind them together the ends of the aforesaid studs being bent in the transverse direction to the band, to engage beneath the recurved edges of the plates and thus render them undetachable.

In the accompanying drawings: Figure 1 is a partial section of the cover showing the method of attachment of the protecting band to the cover. Fig. 2 is a partial plan view showing the blades arranged on the band.

The cover formed as usual of several layers of canvas and rubber is shown at 1 and it is provided on the wearing surface with an extra thickness of rubber 2. The tread of the cover is provided with a band or belt of leather 3, the ends of which 4 are folded as shown. The band 3 is fixed to the cover 1 by means of studs 5 suitably curved which traverse both the cover and the band. The ends 6 of the studs are recurved against the band 3 in a direction transverse to the said band. In order to prevent the middle of the stud 5 wearing the canvas of the cover by reason of the pressure exerted upon it, a thin strip of leather 8 is interposed between the middle of the stud and the canvas of the cover 1, and in order to prevent the wear of the chamber containing compressed air against the top of the stud 5, a thin strip of leather 9 is placed above it and the strip 9 is held by two pieces of canvas 7 impregnated with rubber gripped under the band 8 and folded upon the strip 9 and cemented by aid of benzine. The metal plates 10 slightly spaced apart one from the other are fixed by means of their recurved edges 11 upon the band 3. To each plate there corresponds a fixing stud 5 the ends 6 whereof engage beneath the recurved edges 11 of the plates compressing the tread and provide for the

plates a rigid axis of support which makes it impossible for them to be torn off. The mounting and the dismounting of the plates with this type of studs with branches recurved transversely is effected with great facility. It suffices indeed to grip the cover between the jaws of a vice in order to compress together with rubber the ends of the studs and to facilitate the engagement or the disengagement without effort of their recurved ends from or on one of the recurved edges of the plates. When in action the opposite effects are produced, under the weight of the vehicle the rubber 2 is compressed by contact with the ground which tends to separate the branches of the studs and to thrust their recurved ends into the recurved edges of the plates which are thus made impossible to be pulled off. The same method of fixing by means of studs with branches recurved transversely applies especially to bands fixed upon solid tires. Holes are then made while the tire is heated at suitable places for the passage of the ends of the studs as well as slots of from 1 to 2 centimeters in depth from the interior of the tires wherein are engaged the middle of the studs internally to the covers and before they are fitted upon the wheel rims. The rubber in spite of the strong compression produced by the turning down of the branches of the studs upon the band has no tendency to become cut at the bottom of the slits, the studs doing nothing in fact except following the rubber in its compression movement without injuring at all the elasticity of the tire.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In a pneumatic tire the combination of a cover and of a flat band armed with metal plates with studs passing through the cover and the band and having their ends recurved transversely against the band between the recurved edges of the plates for fixing the cover and the band together and for securing the plates against being pulled off, substantially as set forth.

2. In a pneumatic tire the combination of a cover and of a flat band armed with metal plates with studs passing through the cover and the band and having their ends recurved transversely against the band between the recurved edges of the plates for fixing the cover and the band together and for securing

the plates against being pulled off, and with
thin strip of leather (8) interposed between
the middle of the stud and the canvas of the
cover (1) and of a thin strip of leather (9) be-
5 tween the top of the stud and the air chamber
and of pieces of canvas (7) folded upon the
strip (9) for preventing the wearing of the
cover and of the air chamber, substantially as
set forth.

10 3. The combination of a solid elastic tire
and of a flat band armed with metal plates
with studs traversing the band and the tire

so as to fix them together, said studs having
their ends recurved transversely upon the
band between the recurved edges of the
metal plates serving to render these latter se-
cure against detachment, substantially as set
forth.

Dated this 27th day of October 1905.

JEAN JÉRÔME PAUL LE GRAND.

Witnesses:

PAUL POURNOL,
HANSON C. COXE.