

(No Model.)

2 Sheets—Sheet 1.

C. F. R. A. H. BAGOT.
PNEUMATIC TIRE.

No. 585,418.

Patented June 29, 1897.

FIG. 7.

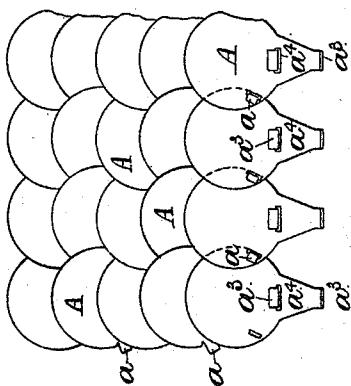


FIG. 8.

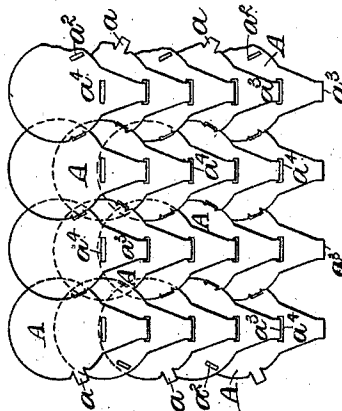


FIG. 1.

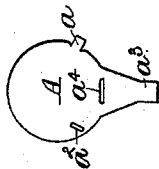


FIG. 2.

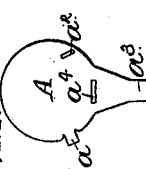


FIG. 10.

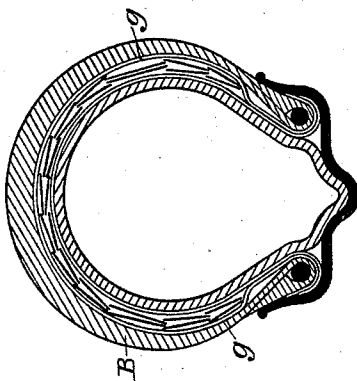
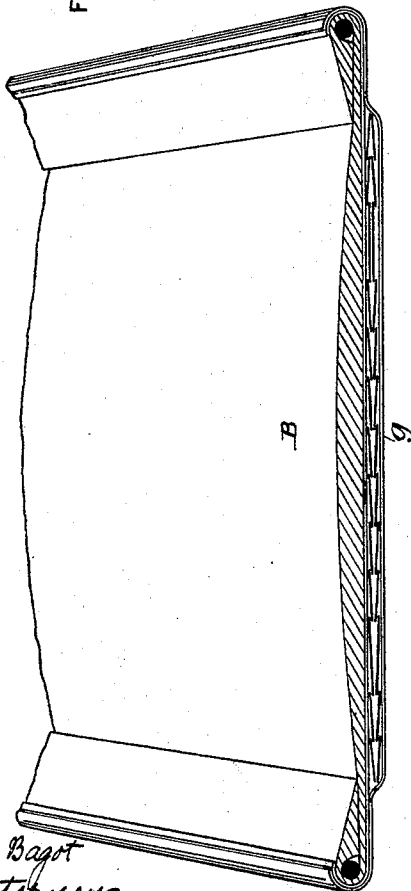


FIG. 11.



Witnesses:

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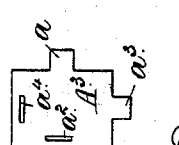
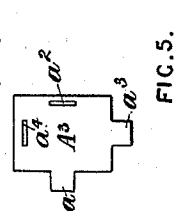
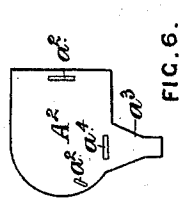
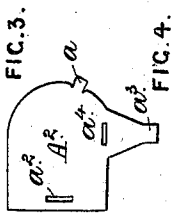
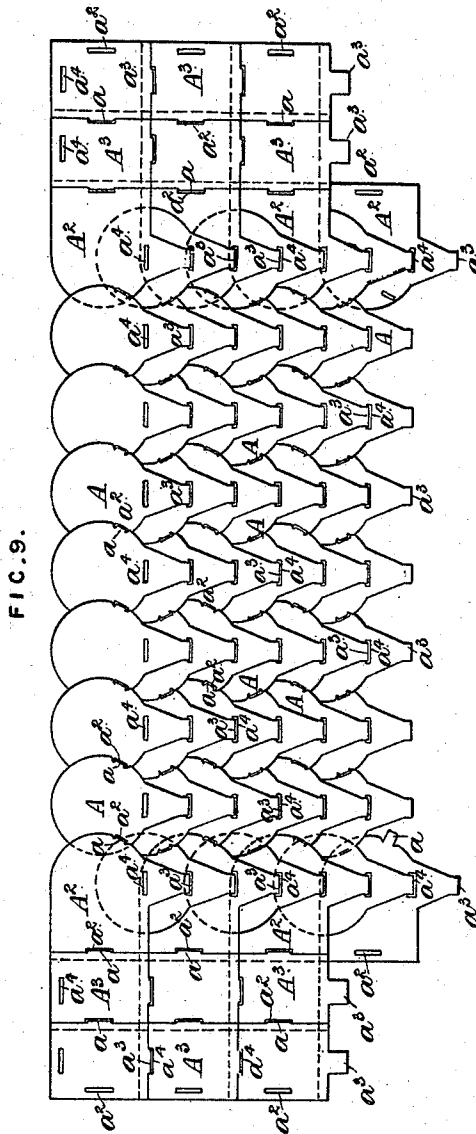
By his attorneys

Horner & Horner

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UNITED STATES PATENT OFFICE.

CHARLES F. R. A. H. BAGOT, OF LONDON, ENGLAND.

PNEUMATIC TIRE.

SPECIFICATION forming part of Letters Patent No. 585,418, dated June 29, 1897.

Application filed June 29, 1896. Serial No. 597,426 (No model.) Patented in England March 24, 1896, No. 6,513; in Hungary June 19, 1896, No. 6,456; in France June 20, 1896, No. 257,421; in Belgium June 22, 1896, No. 122,082; in Switzerland July 2, 1896, No. 12,600; in Canada July 22, 1896, No. 53,001; in Austria September 10, 1896, No. 46/3,496; in Spain September 15, 1896, No. 19,249, and in India December 22, 1896, No. 3,662.

To all whom it may concern:

Be it known that I, CHARLES FITZ ROY ALEXANDER HALLIFAX BAGOT, a subject of the Queen of Great Britain and Ireland, and a resident of 59 Cadogan Square, in the city of London, England, have invented certain Improvements in and Connected with Pneumatic Tires for Velocipedes and other Vehicles, (for which I have obtained Letters Patent in England, No. 6,513, dated March 24, 1896; in India, No. 3,662^P, dated December 22, 1896; in France, No. 257,421, dated June 20, 1896; in Belgium, No. 122,082, dated June 22, 1896; in Austria, No. 46/3,496, dated September 10, 1896; in Hungary, No. 6,456, dated June 19, 1896; in Switzerland, No. 12,600, dated July 2, 1896; in Spain, No. 19,249, dated September 15, 1896, and in Canada, No. 53,001, dated July 22, 1896,) of which the following is a specification.

My invention has for its object to provide an improved arrangement for preventing rupture of the air-chamber in pneumatic tires for velocipedes or other vehicles.

In describing my invention I will refer to the accompanying drawings, wherein—

Figures 1 and 2 are views of opposite sides of the central or "tread" disks constituting a puncture-proof band, as hereinafter described. Figs. 3 and 4 show the left and right terminals of the tread-disks where "side" disks are used therewith. Figs. 5 and 6 show the left and right side disks. Figs. 7 and 8 are reverse views of a number of the tread-disks connected together, and Fig. 9 shows a part of the puncture-proof band when both tread-disks and side disks are used.

According to my invention I provide between the air chamber or space and the outer covering a layer of disks or scales, of metal, vulcanite, celluloid, or equivalent material not readily puncturable, which are arranged, combined, and connected in such manner as to minimize risk of perforation. These are preferably in the form of thin circular or partly-circular metal disks connected together by end and side rivets or tags in rows of sufficient number of disks to extend over the central or tread portion of the tire. These

may be used alone; but for the still better protection of the whole tire and to provide for the adaptation of the puncture-proof band to the curve of the tire as a whole the tread-band formed by the tread-disks may be attached on each side to side disks connected to form side bands which extend around the side portions of the tire to as near the edges of the rim as may be desired. The said side bands may be formed of disks so connected as to render these side bands more pliable than is the tread-band, which latter may, as before indicated, be used without the side bands, if desired.

The connection of the component disks of each row is preferably made, as shown in the drawings, where the disks are marked A, A², and A³, by a tag or tongue *a*, formed at an edge of the overlapping part of each disk, being passed through a corresponding hole or slot *a*² in the overlapping or underlapping part of the next adjacent disk and then bent back, so as to connect the disks together; or the connection of the component disks of each row may be made by means of rivets, which are passed through holes in the overlapping parts of each two adjacent disks. These rivets are not caused to bind the disks together rigidly, but are left with a sufficient length of shank to give "play" or movement between the disks. The rows of disks thus made are then preferably connected to each other by a tag or tongue *a*³ at the bottom edge of each disk being passed through a corresponding slot or hole *a*⁴ in the disk in the row by which it is overlapped or underlapped, the said tag or tongue *a*³ being then bent back so as to engage the disks together, or rivets may, as before, be used in place of tags. Each disk is thus attached separately to the row of disks in its own lateral line and to the row of disks at right angles to that line, while freedom of movement of each disk in the vertical direction is preserved.

The disks of each row of the tread-band overlap in a reverse direction to the rows respectively below and above it. The disks in the said tread-band, arranged relatively to each other, as described, overlap to such an

extent that at no place is there less than two thicknesses of metal or material of which the disks are made, while the method of connection gives the requisite freedom of motion between the disks. The terminal disks of each lateral row of disks in the tread-band are (if the side bands be used) preferably of the shape shown in Figs. 3 and 4, so as to readily engage with the disks of the side bands, which are preferably of the shape shown in Figs. 5 and 6. Every second row of disks of the tread-disks is laterally connected with the row of disks of the side bands by the projections and slots at the sides, as shown, and therefore each of the said side bands contains only half the number of rows of disks of the tread-band. The disks A^3 and also the rows of these disks A^3 overlap each other to a small extent only, in order to render these side bands more pliable than the tread-bands and also because at the sides of the tire the protection against puncture may be lighter than it is required to be at the tread of the tire. The disks A^3 are connected together and to the disks A^2 by projections a^3 and slots a^4 , as in the other disks.

In order to keep the hereinbefore-described puncture-proof band or bands in proper place in the tire, and also (when a separate air-tube is used) to guard against any rubbing or chafing of the said air-tube against the disks composing the band or bands, a canvas covering or inclosure may be placed inward of the said band or bands and the ends of this canvas covering may be secured by rubber solution or otherwise to the tire or cover.

In Figs. 10 and 11 the said band or bands is or are presumed to be inclosed in a canvas wrapping or inclosure g , the edges of which are lapped over and secured to the edges of the covering B of the tire, so as to be attached with the said covering by the attach-

ment wires, chains, or bands, as clearly shown in Fig. 10.

The hereinbefore-described puncture-proof band can be used with any form of pneumatic tires, whether a separate air-tube be used or the tire itself be made tubular to constitute an air-chamber.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I would have it known that my invention includes tread-bands, whether made with side bands or not, and that what I claim is—

1. A puncture-proof band having the tread portion thereof composed of rows of disks overlapping each other to present two thicknesses of disk throughout, and each disk being attached to the row of disks in its own lateral line and to the row of disks at right angles thereto, all substantially as described.

2. A puncture-proof band having the tread portion thereof composed of rows of partly circular metal disks, each disk having at its bottom edge a tongue a^3 and adjacent to it a slot a^4 , and on one side edge a tongue a^2 and on the other edge a tongue a , to attach the disks together, to present two thicknesses of metal throughout the band, substantially as described.

3. A puncture-proof band for pneumatic tires, comprising disks or plates A , each of which is provided with tongues a and a^3 and slots a^2 and a^4 , substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

C. F. R. A. H. BAGOT.

Witnesses:

EDWD. GEO. DAVIES,
WILLIAM F. UPTON.