(No Model.)

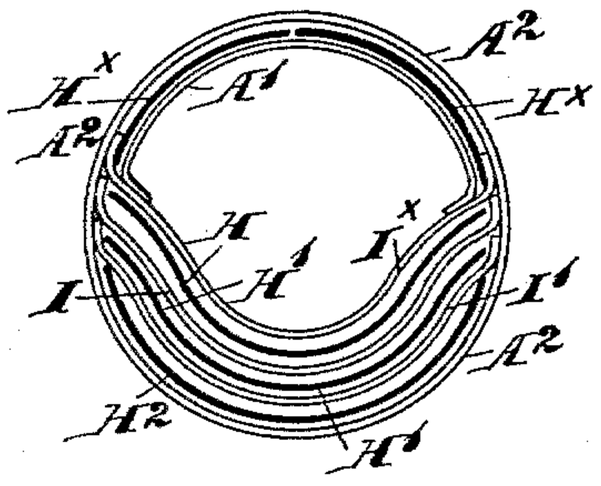
A. PULBROOK.

INFLATABLE WHEEL TIRE.

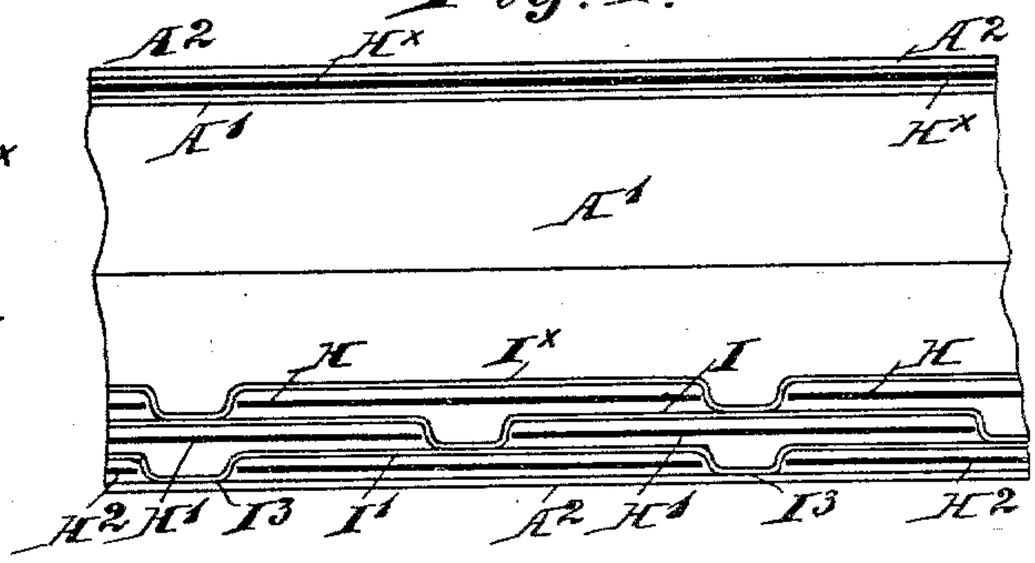
No. 566,796. Patented Sept. 1, 1896.

— Fig. 1. —

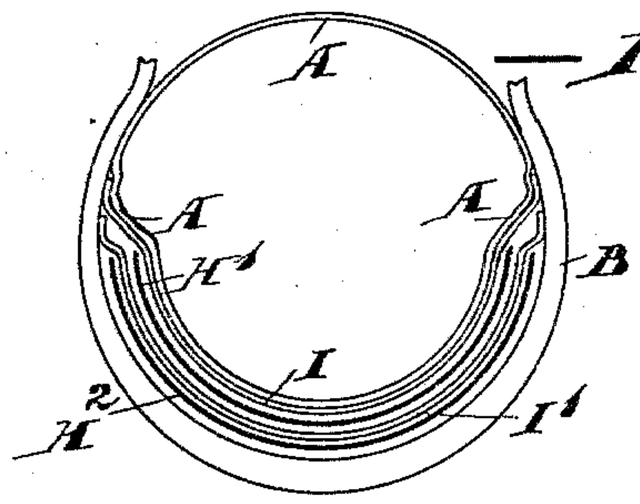
— Fig. 2. —



— Fig. 4. —



— Fig. 3. —



— Witnesses. —

H. van Oldenneel
E. A. Scott

— Inventor. —

Anthony Pulbrook
by Reinhardt R
Attorney.

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UNITED STATES PATENT OFFICE.

ANTHONY PULBROOK, OF LONDON, ENGLAND.

INFLATABLE WHEEL-TIRE.

SPECIFICATION forming part of Letters Patent No. 566,796, dated September 1, 1896.

Application filed November 6, 1895. Serial No. 568,097. (No model.) Patented in England September 23, 1893, No. 17,931; October 3, 1893, No. 18,512; November 6, 1893, No. 21,080, and August 8, 1894, No. 15,172; in France April 3, 1894, No. 237,516, and in Belgium April 6, 1894, No. 109,338.

To all whom it may concern:

Be it known that I, ANTHONY PULBROOK, solicitor, a subject of the Queen of Great Britain, residing at 8 Union Mansions, Queens Court Gardens, West Kensington, in the county of Middlesex, England, have invented certain Improvements in Inflatable Wheel-Tires, (for which I have obtained patents in the following countries: Great Britain, No. 17,931, dated September 23, 1893; No. 18,512, dated October 3, 1893; No. 21,080, dated November 6, 1893, and No. 15,172, dated August 8, 1894; France, No. 237,516, dated April 3, 1894, and Belgium, No. 109,338, dated April 6, 1894,) of which the following is a specification.

This invention relates to the inflatable wheel-tires of bicycles, tricycles, roller-skates, and other carriages, and the object is to provide improved means for preventing the puncturing and consequent deflation of the inflatable tube. For this purpose I employ the arrangements shown in the accompanying drawings, in which—

Figure 1 shows a section of a strip of material intended to form a tire before the same has been bent round into the tubular form. Fig. 2 shows a section of the same after it has been bent round into the tubular form and the longitudinal edges joined together. Fig. 3 shows a section of the same when used as a cover to protect the internal tube, and Fig. 4 shows a longitudinal section of part of the tire or cover so formed.

I take the strip of material A^2, (see Figs. 1 and 2,) intended to form the outermost tube before it is folded over into the tubular form, and I place on it at the part where the tread of the tire is to be one or more strips or bands H^2, of the more or less non-puncturable material or material difficult to puncture. I then lay a broader strip or band of india-rubber I′ over the said strip or band H^2 and cement the edges to the tube-strip A^2. I then place over this, if necessary, one or more other strips or bands H′ of the protecting material and cover it or them with another strip or band I, of thin india-rubber, and cement the edges of this strip to the tube-strip A^2, and similarly with the strips or bands H and $I^\times$, and so on to any required number of thicknesses. Strips or bands $H^\times$ of the protecting material may then be added, and over these strips or bands A′, of thin india-rubber, with their edges cemented to the strip or band of india-rubber $I^\times$. The strips or bands so prepared, as shown in Fig. 1, are then made up into the tubular form, as shown in Fig. 2, the longitudinal edges of A^2 and A′ being properly cemented together to form separate air-tight tubes and compartments. These tubes and compartments are then bent into the hoop form and the ends of each individual strip or band of india-rubber are cemented together, so that each strip or band of protecting material is contained or inclosed in a separate air-tight casing.

By the means above described a practically unpuncturable tire is obtained, which is as resilient as an ordinary inflatable tire not provided with any protecting material.

Fig. 3 shows the application of the same principle of construction, namely, the inclosing of more or less non-puncturable material or material difficult to puncture in separate air-tight chambers to the outer covering of the tire, the inflatable tube proper, A, which may be a single tube or a tube of laminated or other suitable construction, being placed in the hollow rim of the wheel and held therein by the cover B in any known or suitable way.

H^2 H′ represent the protecting material, and I′ I the strips of thin india-rubber cemented over them to the inside of the cover B.

In some cases the more or less non-puncturable material may be omitted from the air-tight chambers, leaving such air-tight chambers filled with air only.

I so connect together transversely at intervals the strips or bands of india-rubber that the air-tight spaces between such strips or bands are subdivided into sections laterally, so that in case of the puncture of one section the air may still remain confined in the other sections, so as to retain the original degree of resiliency of the tire in those unpunctured sections, notwithstanding the puncturing of the one or more sections. This arrangement is shown in Fig. 4, in which the strip or band I′ is cemented at intervals transversely or

circumferentially, as at I^3, to the strip A^2, the strip I to the strip I′, the strip $I^\times$ to the strip I, and so on for any number of strips there may be, so as to form a number of separate air-tight subdivisions or chambers between each pair of strips or bands, and each of these air-tight subdivisions or chambers contains or may contain a piece of fish-skin or other material difficult to puncture.

I claim—

1. In an inflatable wheel-tire, the combination with the outer tube of the tire or with the outer cover thereof, of strips or bands of india-rubber or other flexible air-tight material cemented longitudinally, and transversely at intervals to the inside of such outer tube or outer cover at the tread part thereof so as to form separate air-tight subdivisions or chambers, substantially as described.

2. In an inflatable wheel-tire, the combination with the outer tube of the tire or with the outer cover thereof, of strips or bands of india-rubber or other flexible air-tight material cemented longitudinally, and transversely at intervals to the inside of such outer tube or outer cover at the tread part thereof, so as to form separate air-tight subdivisions or chambers, and flexible material which is more or less non-puncturable or more or less difficult to puncture placed in the said separate air-tight subdivisions or chambers, substantially as described.

In witness hereof I have hereunto set my hand in presence of two witnesses.

ANTHONY PULBROOK.

Witnesses:
WILLIAM HENRY BECK,
STEPHEN EDWARD GUNYON.