

A. F. HAWKSLEY.
RESILIENT WHEEL.
APPLICATION FILED FEB. 24, 1910.

1,044,522.

Patented Nov. 19, 1912.

3 SHEETS—SHEET 1.

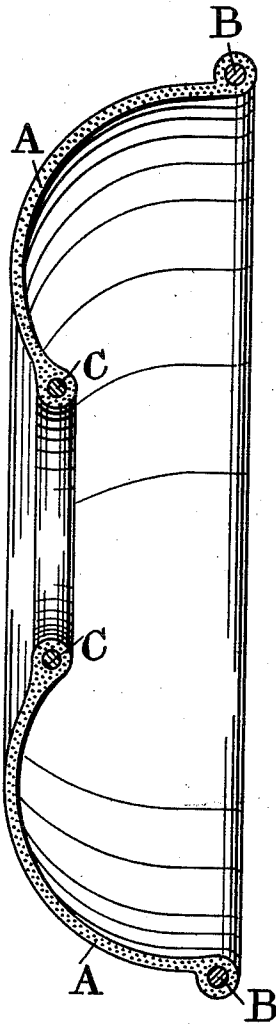


Fig.1.

WITNESSES.

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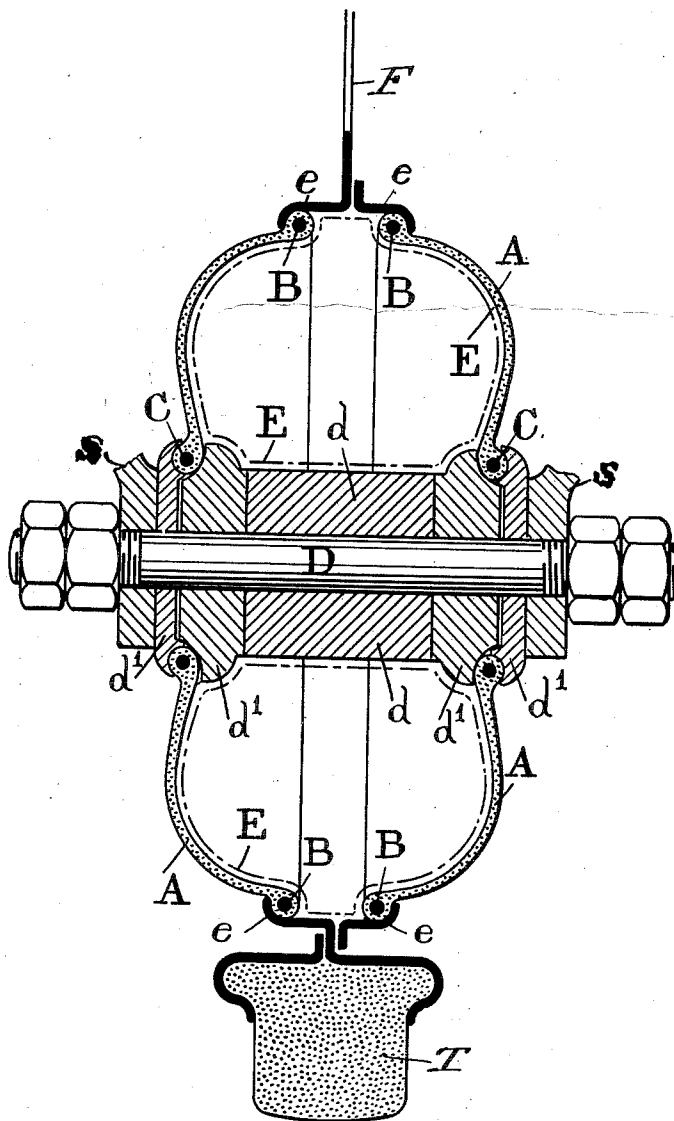


Fig. 2.

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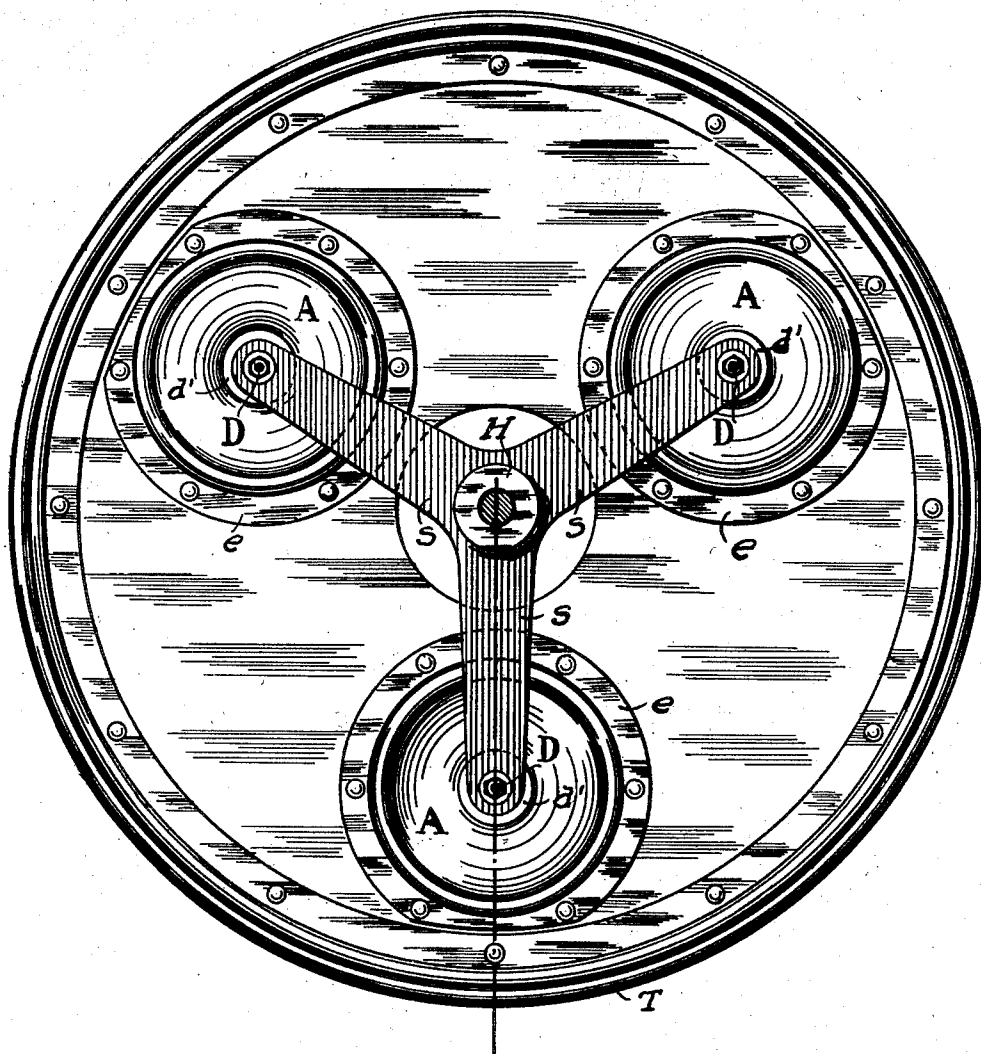


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

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RESILIENT WHEEL.

1,044,522.

Specification of Letters Patent.

Patented Nov. 19, 1912.

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To all whom it may concern:

Be it known that I, ARTHUR FREDERICK HAWKSLEY, a British subject, residing at Fairhaven, county of Lancaster, England, have invented certain new and useful Improvements in Resilient Wheels, of which the following is a specification.

This invention relates to pneumatic or resilient wheels in which a number of pneumatic cushions are inserted in, or applied to, the body of the wheel in a plane parallel to the vertical plane of the wheel. The covers or outer members for these pneumatic cushions are constructed in an annular form of curved or arched contour in radial cross section with a fixing or retaining bead around the periphery and another around the margin of the center opening. Heretofore the covers have been constructed with these two retaining beads in the same vertical plane parallel to the vertical plane of the wheel. This construction of the cushions, I find, puts an undue strain upon the material thereof at or near the inner retaining ring and I now find that by placing the inner bead or inner margin of the cushion member in a plane outside or beyond the plane in which the peripheral bead or outer margin of the cushion member is placed, but still parallel to the vertical plane of the wheel, that the stress upon the cover is more evenly distributed and that better results are obtained. In practice, I also find that the improved construction reduces the lateral movement of the cushion without detracting from the resiliency of the wheel which is a further great advantage.

The invention will be fully described with reference to the accompanying drawings forming part of the specification, in which—

Figure 1 is a central vertical cross section of a pneumatic cushion member. Fig. 2 is a central vertical cross section through part of wheel embodying my invention. Fig. 3 is a side elevation of a resilient wheel showing the application of my invention thereto.

Each cushion member A, is constructed of fabric or cords wound around two rings B and C and vulcanized, the ring B being of greater diameter than the ring C and sufficient material provided to mold the members, intermediate the rings, in a curved radial section. In vulcanizing, and forming

the cushion member A, the peripheral ring B is placed in a plane different from the plane in which the inner ring C is placed, but in planes parallel to each other, the peripheral edge of the inner ring being inside the facial planes of the member, as clearly shown in the drawings. This will give a wider base to the center of the cushion between the two members A when assembled. In assembling, a supporting stud D passes through the members A at right angles to the vertical plane of a wheel frame F. The members A, being separated internally by a loose sleeve *d* and washers *d'*. The frame F is provided with a suitable tread T as shown in Fig. 2.

The members A are secured to the wheel structure parallel to the vertical plane of the wheel frame F, and around an inner tube E, by flanges *e* gripping the beads formed by the rings B, the flanges *e* being secured to the wheel frame F. The central portion of the members A are rigidly secured to the hub H, through the washers *d'* and the stud G, by suitable stay members S.

From the foregoing description it will be seen that the inner margins of the annular shaped resilient cushion members A are held rigid with respect to the hub and axle of the vehicle while the outer margins thereof are held rigid to the wheel frame F which is movable with respect to the hub, the members A, through the stays S, forming the resilient means between the tread of the wheel frame F and the axle of the vehicle.

I claim—

In a resilient wheel structure, the combination with a wheel frame, of a plurality of pneumatic resilient cushion structures disposed about the plane of said wheel frame, each of said cushion structures including a pair of oppositely disposed resilient annular shaped members, arched in cross section and formed with inner and outer peripheral margins parallel to the central plane of the wheel, the said outer margins being secured to said wheel frame and the said inner margins being disposed intermediate the faces of their respective members, and the inner margins of the members of each pair being spaced apart a relatively greater distance from the vertical plane of the wheel than said outer margins; a central stud for each cushion structure to which the said inner margins of said annular shaped members

thereof are secured in rigid spaced apart relation to each other; and, stays operatively connected with said studs to retain the same in rigid spaced apart relation to each other and to the axis of rotation of said wheel structure.

In testimony whereof I have hereunto set

my hand in presence of two subscribing witnesses.

ARTHUR FREDERICK HAWKSLEY.

Witnesses:

J. OWDEN O'BRIEN,
HARRY BARNFATHER.