No. 820,110. PATENTED MAY 8, 1906.

H. HARRISON.

MEANS FOR REPAIRING PUNCTURES IN PNEUMATIC TIRES.

APPLICATION FILED OCT. 4, 1904.

Fig. 1.

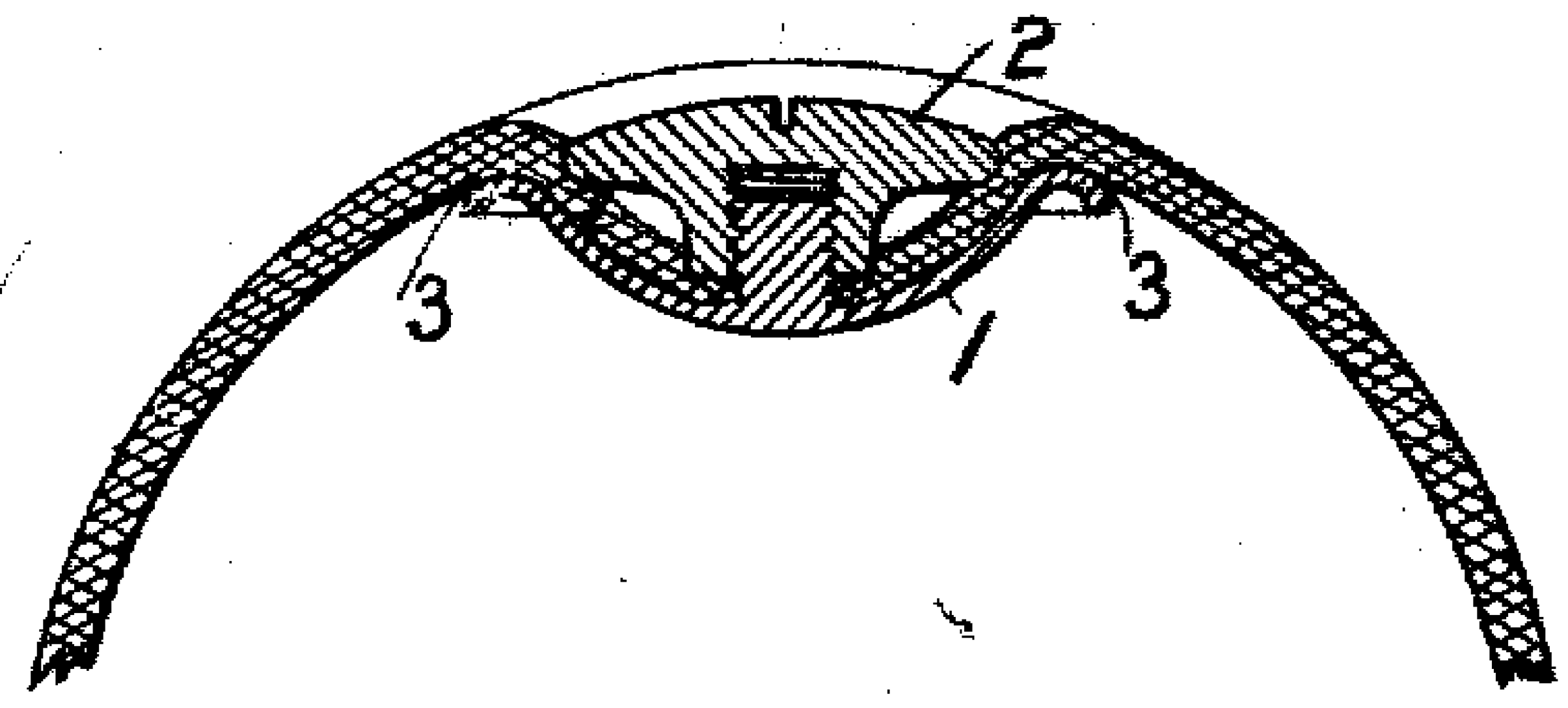


Fig. 7.

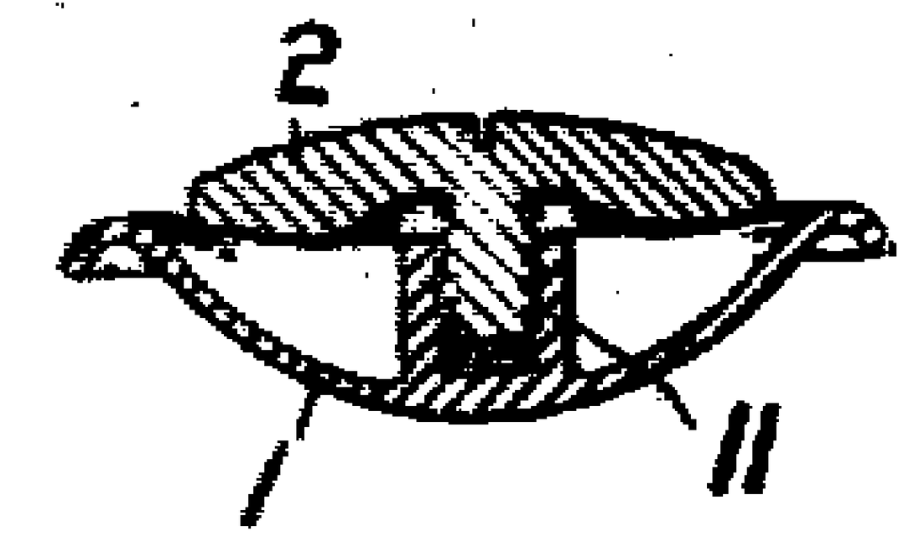


Fig. 2.

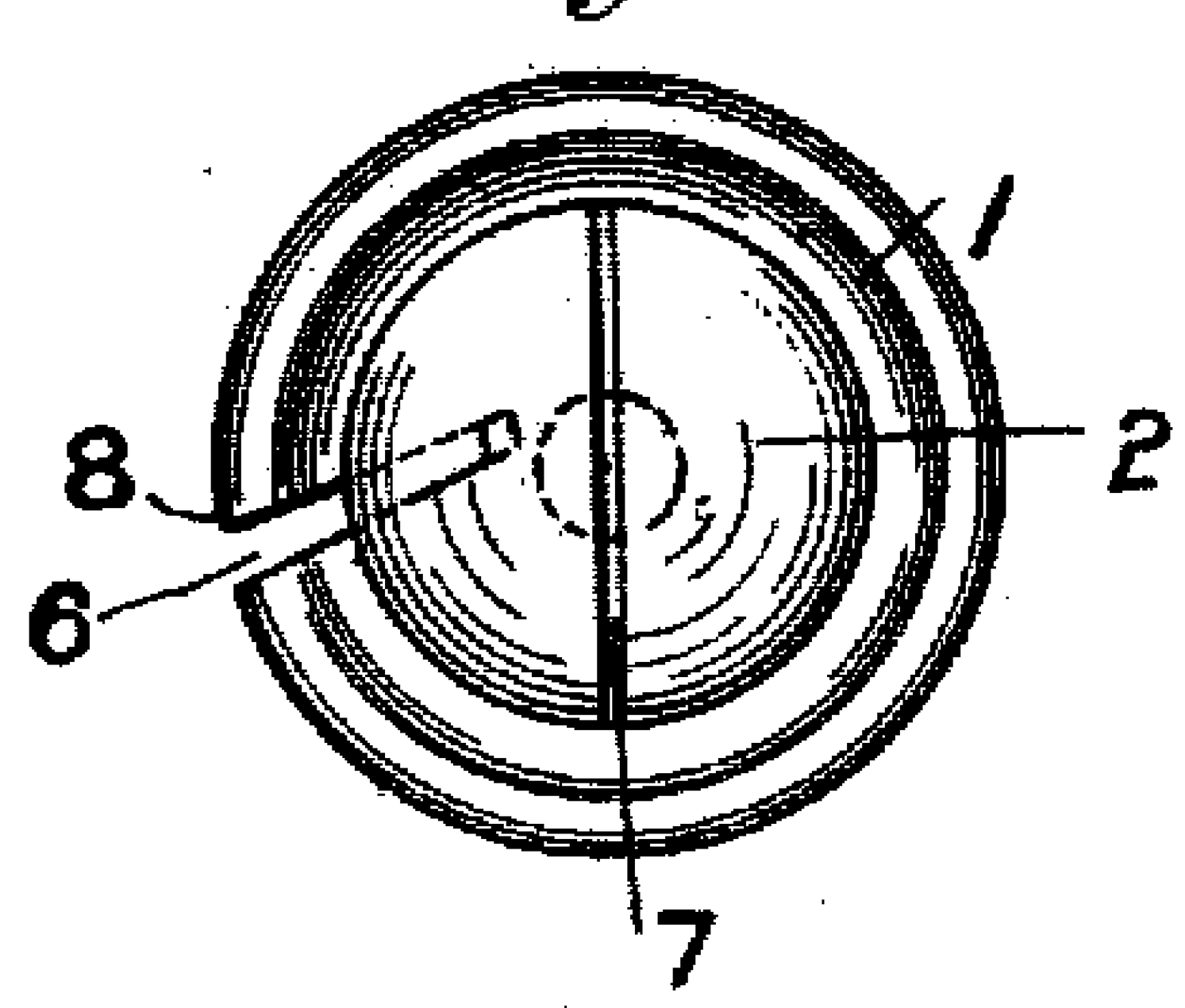


Fig. 8.

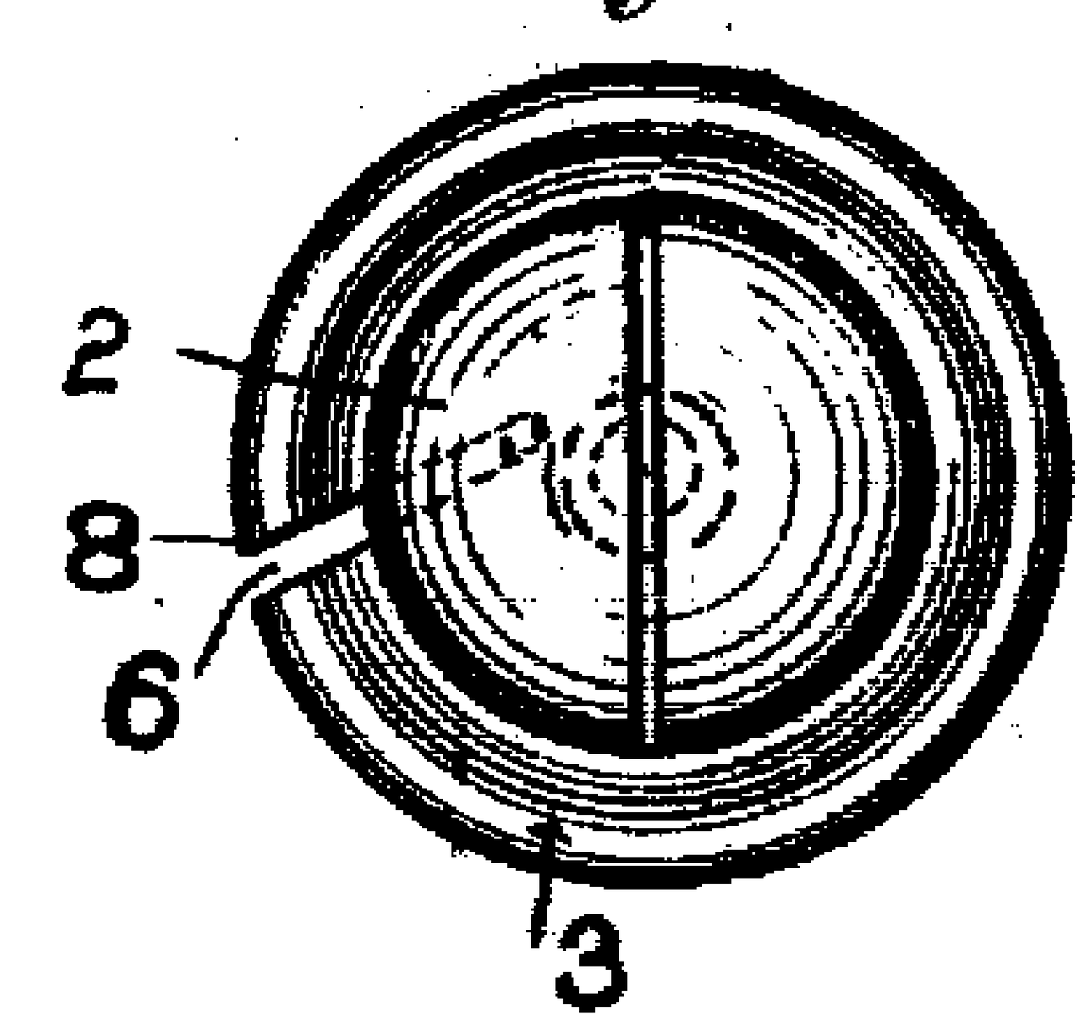


Fig. 3.

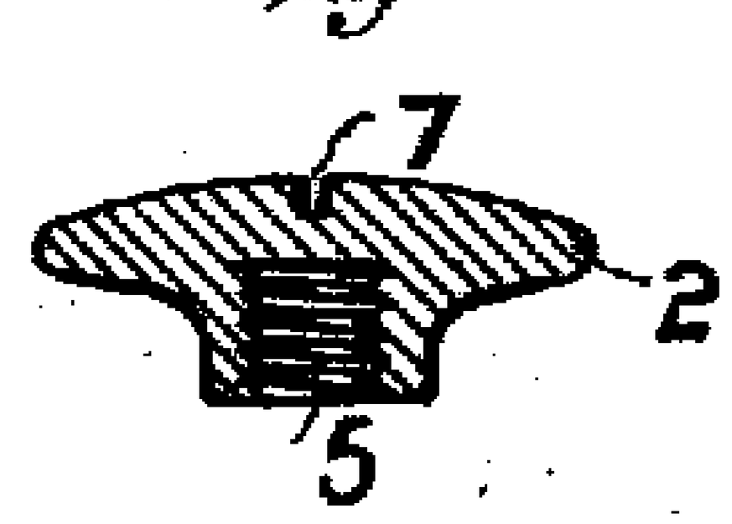


Fig 5.

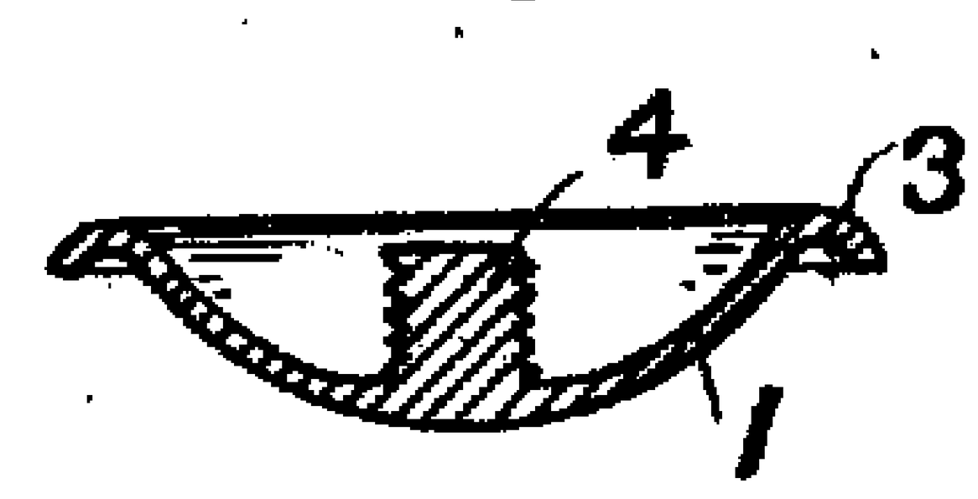


Fig. 9.

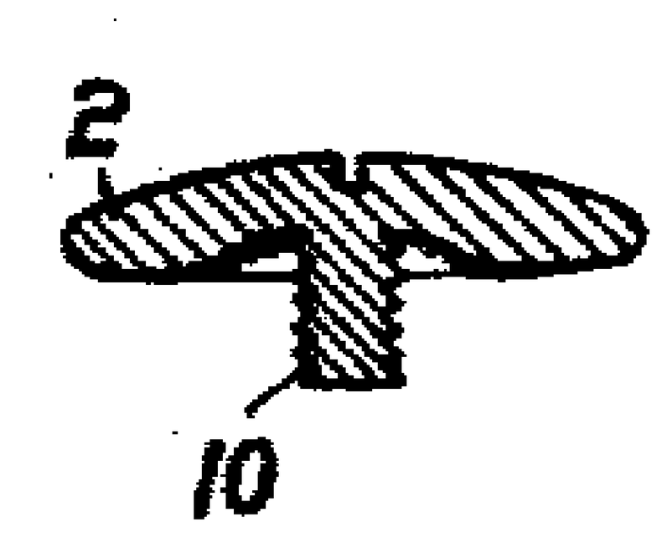


Fig. 4

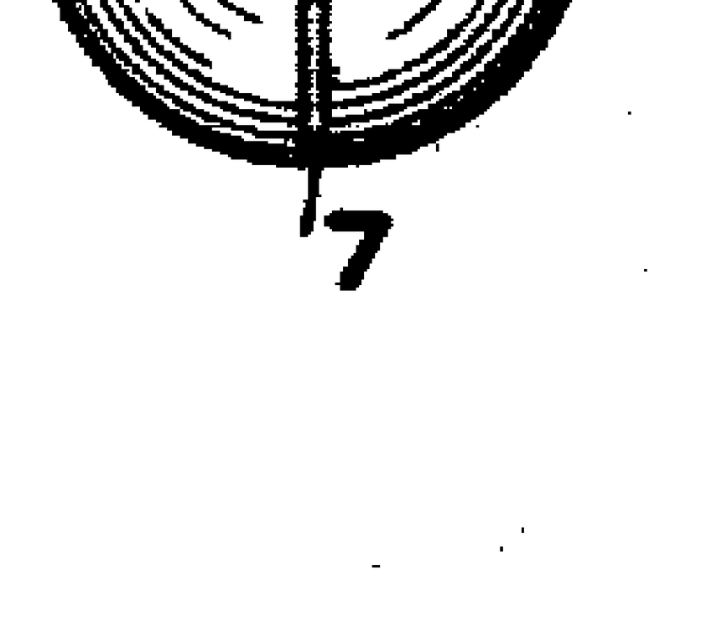


Fig. 6.

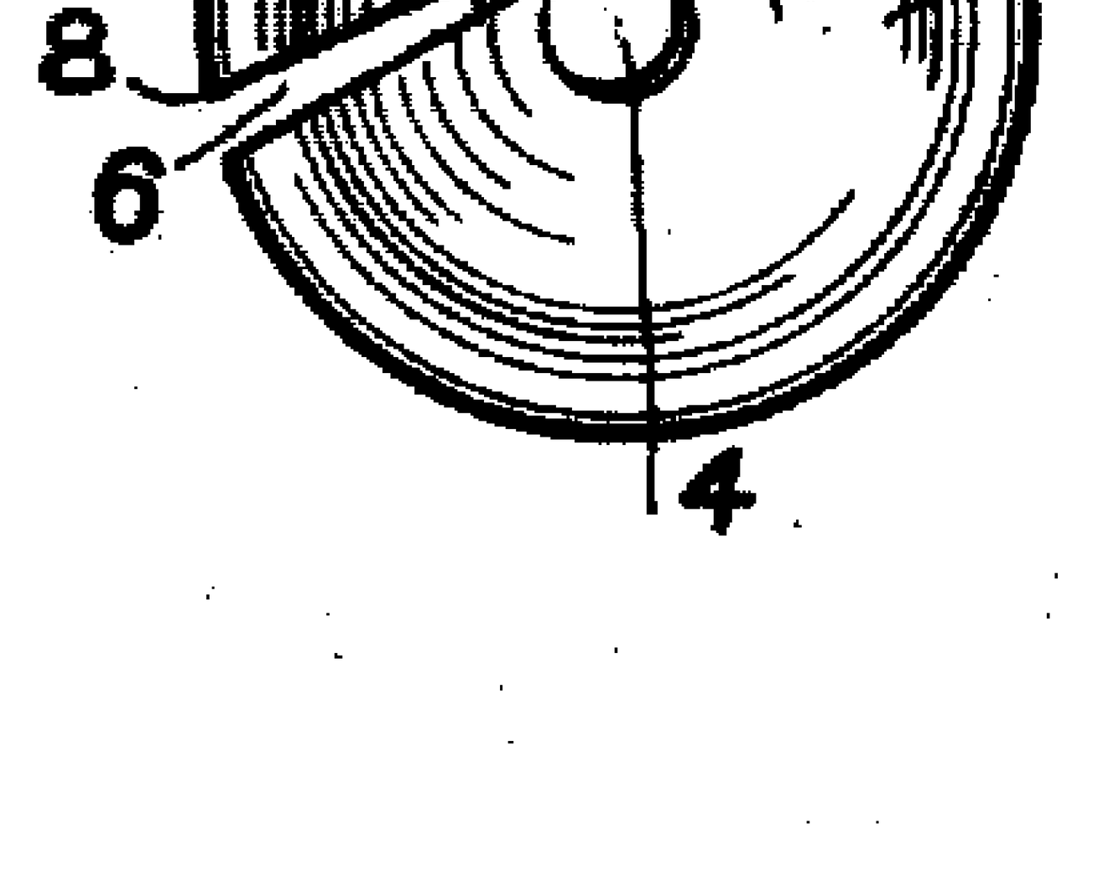
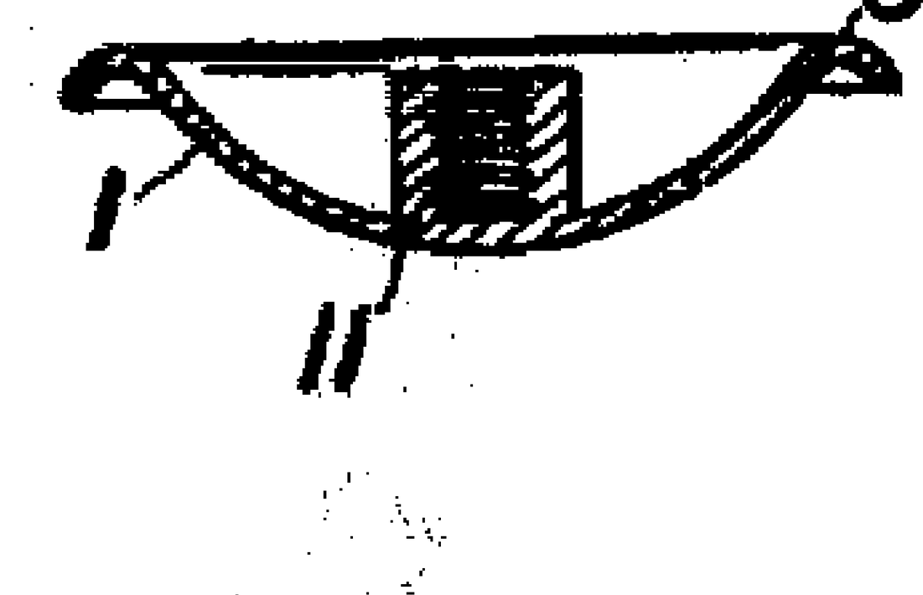


Fig. 10.



Witnesses.

[signature]

[signature]

Inventor.

Harry Harrison

[signature]

Attorneys.

UNITED STATES PATENT OFFICE.

HARRY HARRISON, OF ERDINGTON, ENGLAND.

MEANS FOR REPAIRING PUNCTURES IN PNEUMATIC TIRES.

No. 820,110. Specification of Letters Patent. Patented May 8, 1906.

Application filed October 4, 1904. Serial No. 227,150.

To all whom it may concern:

Be it known that I, HARRY HARRISON, ladies' tailor, a subject of His Majesty the King of Great Britain and Ireland, residing at Grasmere, Chester Road, Erdington, in the county of Warwick, England, have invented new and useful Improvements in Means for Repairing Punctures in Pneumatic Tires, of which the following is a specification.

This invention consists of the herein-described improved means for repairing punctures in the air-tubes of pneumatic tires, and particularly those pneumatic tires which are used on the wheels of motor-vehicles and which are blown up to a high pressure.

My invention is of very simple construction and is very easily and quickly applied and effectually repairs the punctures, so as to make the air-tube air-tight.

My invention is illustrated by the accompanying drawings, on which—

Figure 1 is a sectional elevation of my invention in use in the air-tube of a pneumatic tire, this view also showing a portion of the said air-tube in cross-section. Fig. 2 is a plan of my invention. Fig. 3 is a cross-sectional elevation of one part of my invention, and Fig. 4 is a plan of the part shown by Fig. 3. Fig. 5 is a cross-sectional elevation of another part of my invention, and Fig. 6 is a plan of the part which is shown by Fig. 5. Fig. 7 is a cross-sectional elevation of a slightly-modified form of my invention, and Fig. 8 is a plan of the example of my invention shown by Fig. 7. Fig. 9 is a sectional elevation of one part of my invention which is shown in Figs. 7 and 8. Fig. 10 is a sectional elevation of the other part of the same.

The same reference-numerals indicate the same or corresponding parts in all the figures.

I will first describe the arrangement of my invention illustrated by Figs. 1 to 6, both inclusive.

I provide two disks (marked, respectively, 1 2) made of suitable metal or other suitable substance. The disk 1 is by preference concave, with a raised or rounded rim 3. The other disk 2 is made with a rounded periphery and is preferably somewhat smaller than the first disk 1, so as to fit inside the raised or rounded rim of the same and form an air-tight joint when the rubber substance of the air-tube is inserted between the two disks and they are pressed together, as hereinafter described. I provide suitable means for attaching and pressing the two disks together, consisting, by preference, of a male screw 4, which is formed at the center and on the inside of the concave disk 1 and which takes into a female screw 5, which is formed on the inside of the disk 2. The disk 1 has or may have a slit 6 extending from the rim to nearly the center of the disk and of sufficient width to admit the thickness of the india-rubber air-tube, and the object of this slit is to enable the disk 1 to be threaded through a smaller puncture which is in the air-tube without stretching the puncture to the full diameter of the disk 1. The disk 2 has a cross-slit 7 and is otherwise formed so that it can be readily turned, as by a screw-driver.

In applying my invention to repair a puncture in the air-tube of a pneumatic tire the disk 1 is passed through the puncture into the inside of the air-tube, which can readily be done by first inserting the part 8 through the puncture and then turning the disk round until it has all passed through the puncture, which will have stretched somewhat in getting the disk through. The disk 1 is now held in the position shown in Fig. 1 by the pressure of the operator's hand from the outside of the tube, with the stem 4 of the disk 1 projecting through the puncture. The disk 2 is now screwed onto the stem 4 and screwed up tightly, so that the india-rubber in a circle round the puncture is firmly clamped between the periphery of the disk 2 and the interior of the concaved disk 1, so that a perfectly air-tight joint is formed and the appliance is, as shown in Fig. 1, well within the circumference of the air-tube. The periphery of the disk 1 is rounded off at 3, as above described, so as to prevent it from cutting the india-rubber substance of the air-tube and also to fit and joint against the inside of the air-tube.

The appliance used as above described forms a perfectly air-tight joint; but, if desired, india-rubber or other suitable washers may be used between the disks and the substance of the air-tube which is clamped between them, and these washers may be used with or without the addition of solution which is ordinarily used for sticking patches on air-tubes to repair punctures in the same.

The arrangement of my invention illustrated by Figs. 7, 8, 9, 10 is similar to that above described except that the male screw 10 is formed at the center of the disk 2 to take into a female screw 11, which is formed at the center of the concave disk 1. The

hole in the female screw of the disk 1 may, if desired, pass right through this disk, thereby enabling the length of the male screw on the other disk to be increased.

The accompanying drawings illustrate what I consider to be the best ways of carrying out my invention; but it is to be understood that my invention is not limited to the precise details shown.

What I claim as my invention, and desire to secure by Letters Patent, is—

An appliance for closing a puncture in an air-tube of a pneumatic tire, consisting essentially of two metal or other suitable disks with means for pressing and securing them together, one of said disks having a slot to facilitate its being passed through the puncture into the interior of the air-tube, substantially as set forth.

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

HARRY HARRISON.

Witnesses:

CHARLES BOSWORTH KETLEY,

THOMAS JOHN ROWE.