

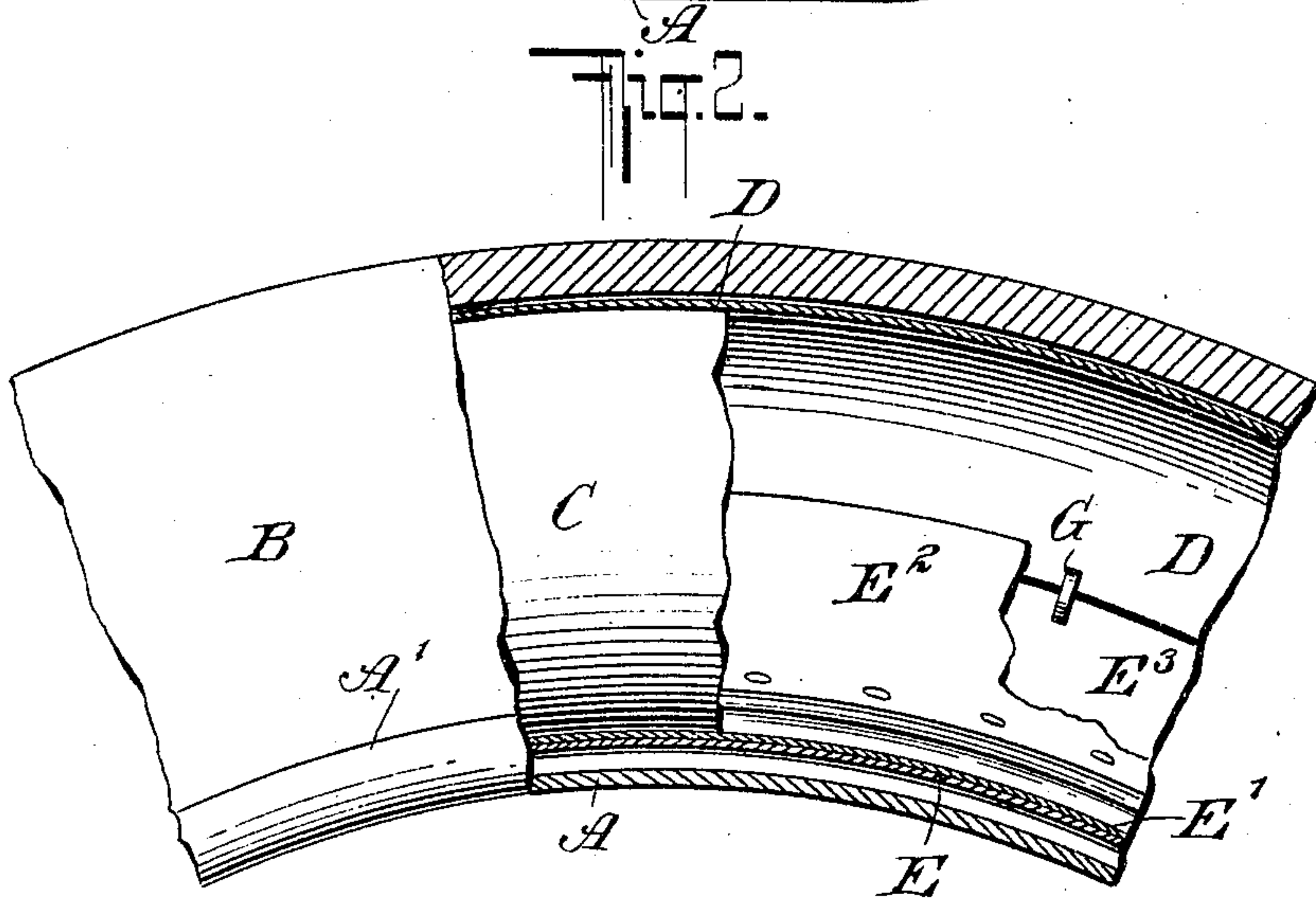
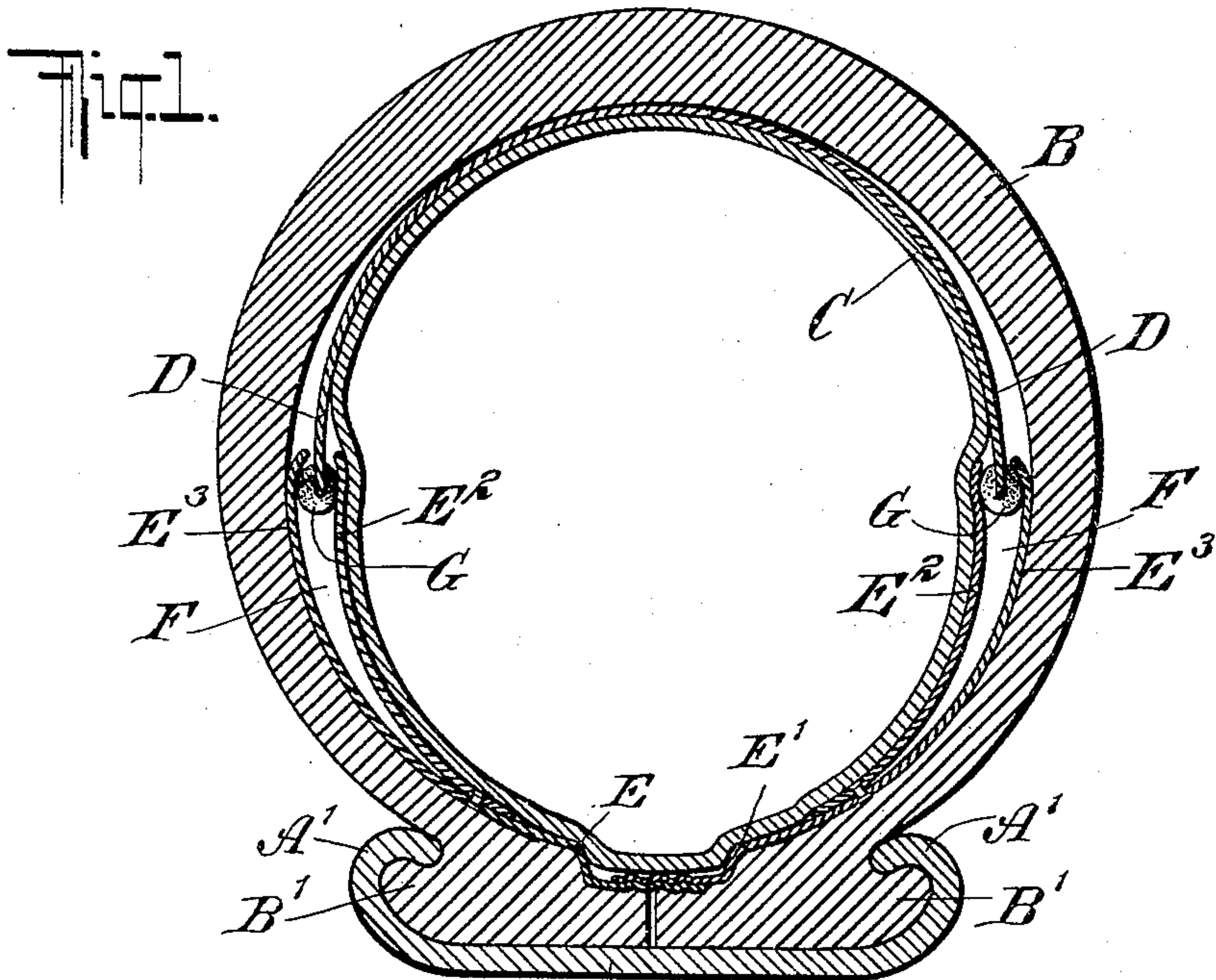
No. 773,216.

PATENTED OCT. 25, 1904.

M. M. MILLS.
PNEUMATIC TIRE.

APPLICATION FILED FEB. 9, 1904.

NO MODEL.



WITNESSES:

Julius H. Smith

John L. Latta

INVENTOR

Madeline M. Mills

BY

Brisson & Maunth
ATTORNEYS

UNITED STATES PATENT OFFICE.

MADELEINE MERLI MILLS, OF NEW YORK, N. Y.

PNEUMATIC TIRE.

SPECIFICATION forming part of Letters Patent No. 773,216, dated October 25, 1904.

Application filed February 9, 1904. Serial No. 192,772. (No model.)

To all whom it may concern:

Be it known that I, MADELEINE MERLI MILLS, a citizen of the United States, and a resident of Kingsbridge, in the borough of the Bronx, city, county, and State of New York, have invented certain new and useful Improvements in Pneumatic Tires, of which the following is a specification.

My invention relates to armored vehicle-tires, particularly of the double-tube character, and has for its object to provide practically absolute protection against the puncturing of the air-chamber or inner tube without, however, materially detracting from the resiliency of the tire or unduly increasing its weight.

Another object of my invention is to attain the useful results pointed out above by a simple construction which also enables the tire to be readily applied to a rim or removed therefrom.

I will now describe a typical form of my invention with reference to the accompanying drawings and will then indicate the novel features of my invention in the appended claims.

Figure 1 is a cross-section of the rim, tire, and protector; and Fig. 2 is a partial elevation of the wheel with parts in longitudinal section.

A indicates the rim, which in the form shown has two flanges A' to hold in place lips or flaps B' on the longitudinally-divided shoe or outer case B, or instead of this well-known arrangement any other approved construction of outer cover may be employed. Instead of fitting the inflatable air-chamber or inner tube C directly into the cover B, in accordance with the usual practice, I interpose a protector of peculiar novel construction between the case B and tube C. This protector comprises two members, the inner one of which—that is, the one nearer to the rim A—is stationary, while the outer member D is movable (locally) toward and from the rim, allowing for a temporary compression of the air-tube C. In the specific structure shown the outer member D is a ring, about semicircular in cross-section, extending around the rim and embracing the outer portion of the air-tube C. Both members of the protector are made of a suitable

resistant material—as, for instance, steel. The inner member consists of two sections E E', adapted to be screwed together, thus securely connecting the sections, yet allowing them to be separated readily whenever this is desired. Each of the sections E E' has an inner wall E² and an outer wall E³, forming pockets F. The free edges of said walls are preferably curved toward each other to restrict the opening left between them. The walls E² E³ may be made of one piece or of two or more pieces secured together. The edges of the outer member D extend into the pockets F and move therein freely, enabling the outer member to yield without ordinarily coming into frictional contact with the walls E² E³. If desired, rubber rings G or other distance-pieces may be provided to prevent contact of the outer member D with the walls E² E³ under ordinary circumstances.

The screw-threaded portions of the inner member sections E E' may be bent toward the rim to fit a recess in the outer case B, thus preventing the protector from slipping transversely. However, the screw-threads alone would guard against such transverse movement to a large extent.

It will be seen that the air-chamber C is entirely enveloped by the protector and is thus efficiently protected against puncturing. Of course when the air-chamber consists of thin rubber it will when inflated closely fit the adjacent metal surfaces, as shown.

My invention is also applicable to single-tube tires, the protector being exposed in this case instead of being surrounded by an outer case and the single-tube tire taking the place of the tube C. The protector would engage the rim in such case. It will be understood, therefore, that the term "air-chamber" as used in some of the claims is to be interpreted to include a single-tube tire as well as the inner tube of a double-tube tire.

While my invention provides most efficient protection to the air-chamber, it does not interfere with the resiliency of the tire, since the outer member of the protector is free to yield toward the rim A.

Various modifications may be made without departing from the nature of my invention.

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

1. The combination, with the air-chamber, of a protector therefor comprising an inner member having pockets at the sides of said air-chamber, and an outer member the edges of which are adapted to project into said pockets and to move therein.
2. The combination, with the air-chamber, of a protector therefor, comprising an inner member consisting of two sections screwing together circumferentially of the air-chamber, and an outer member movable relatively to the inner member.
3. The combination, with the air-chamber, of a protector therefor comprising an inner member consisting of sections screwed together, and an outer member movable relatively to said inner member at both sides of the air-chamber.
4. The combination, with the air-chamber, of a protector therefor comprising an inner member having pockets at the sides of the air-chamber, an outer member the edges of which are adapted to project into said pockets and to move therein, and distance-pieces located within said pockets to keep the outer member ordinarily from frictional contact with the inner member.
5. The combination, with the inner tube and the outer case, of a protector interposed between them and comprising an inner member

having pockets at its edges and an outer member the edges of which fit into the said pockets.

6. The combination, with the inner tube and the outer case, of a protector interposed between them and comprising an inner member consisting of two sections having interlocking screw-threaded portions in engagement with the outer case, and an outer member movable relatively to said inner member.

7. The combination, with a tire, of a protector therefor consisting of an inner member and an outer member, the said protector being provided with edge pockets to receive the opposing edges.

8. The combination, with a tire, of a protector therefor consisting of an inner member and an outer member one of which has edge pockets to receive the edges of the other member.

9. The combination, with a tire of a protector therefor consisting of members one movable relatively to the other and provided with pockets to receive the opposing edges, the edges of said pockets being curved toward each other.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MADELEINE MERLI MILLS.

Witnesses:

JOHN LOTKA,
EUGENE EBLE.