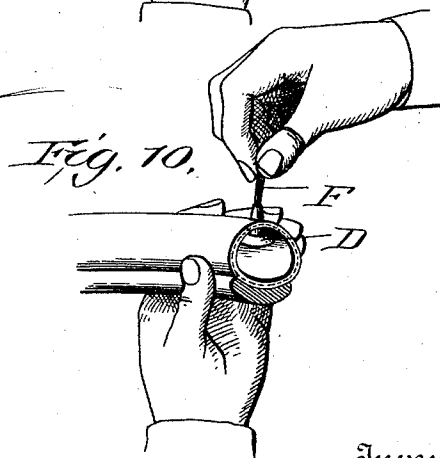
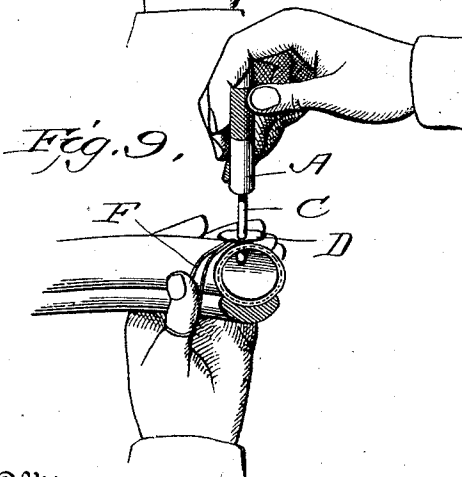
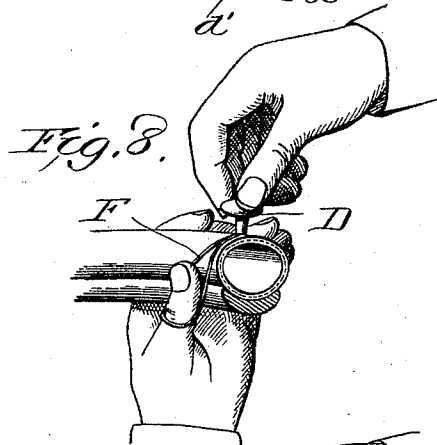
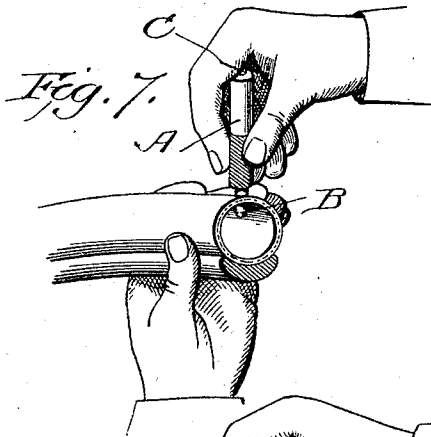
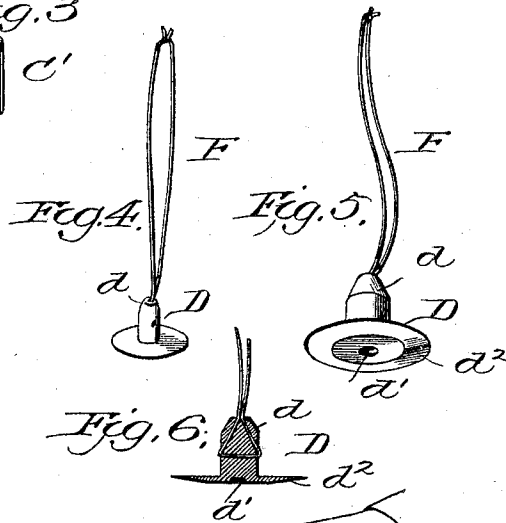
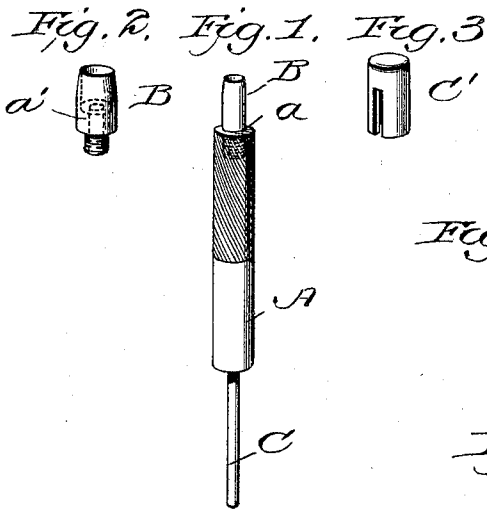


(No Model.)

J. SCHADE.
DEVICE FOR REPAIRING PNEUMATIC TIRES.

No. 584,295.

Patented June 8, 1897.



Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

JOHN SCHADE, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO
HENRY SCHADE, OF SAME PLACE.

DEVICE FOR REPAIRING PNEUMATIC TIRES.

SPECIFICATION forming part of Letters Patent No. 584,295, dated June 8, 1897.

Application filed August 27, 1896. Serial No. 604,114. (No model.)

To all whom it may concern:

Be it known that I, JOHN SCHADE, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Means for Repairing Pneumatic Tires; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a perspective view of the tool or implement. Fig. 2 is a similar view of a larger size of cutter. Fig. 3 is a similar view of a cap for the cutter. Figs. 4, 5, and 6 are detail views showing the plugs. Figs. 7, 8, 9, and 10 are perspective views illustrating the manner in which the invention is practiced.

This invention has relation to means for the repair of pneumatic vehicle-tires of the kind known as the "single-tube" or "hose-pipe" tires; and it consists in the provision of a repair-plug of improved character, all as hereinafter described, and pointed out in the appended claims.

Heretofore in the use of repair-plugs consisting of an enlarged disk or head having connected a central stem considerable difficulty has been experienced in introducing the same through the puncture to the interior of the tire. The tool commonly employed for this purpose is a pair of small pliers in the jaws of which the disk or head is grasped in folded form and the whole then forced through the puncture, the pliers being subsequently withdrawn past the stem. This operation, besides being more or less difficult to accomplish, results in an unnecessary enlargement of the puncture and frequently causes the tire around the puncture to be torn to a greater or less extent. Difficulty has also been experienced in first preparing the puncture to receive the plug, especially when on the road. A heated punch is commonly employed for this purpose, but such an implement is not available when on the road,

and is, moreover, objectionable because of its vulcanizing effect upon the rubber.

The present invention is designed to provide a plug which can be inserted and seated very quickly without the use of pliers or like instruments.

In the accompanying drawings, D designates one of my improved plugs, which in general form is similar to those heretofore employed—that is to say, it has an enlarged head or disk portion and a central shank or stem. The end of the stem, however, has a conical point *d* and the head or disk portion has on its outer face a central recess or depression *d'*. It is also thinned or skived off at its marginal portion, as indicated at *d''*, to give it greater flexibility.

Attached to the stem portion is a string or cord F, which is not tied around the stem in the usual manner, but is sewed up through said stem, as indicated, whereby its pulling end is central with respect thereto and affords means for giving a direct central pull to the plug. In securing this thread the needle is inserted through the stem from the end and out at one side. It is then passed diametrically through the stem and thence back and out at the end, all as clearly shown in Fig. 6.

I will now describe a suitable tool for use in preparing the punctures for receiving the plugs and for seating the same.

In Fig. 1 the letter A designates a suitable holder or handle having in one end a screw-threaded socket *a*, in which is removably secured a hollow cylindrical cutter B, different sizes of which may be used interchangeably in the same tool. The opposite end of the handle has a reduced cylindrical extension C, which forms a punch or pointer for use in the manner hereinafter described.

C' designates a cap for the cutter.

The manner of using is as follows: The puncture being located, the cutter is slightly moistened with the tongue or otherwise and is placed over and around the puncture. A gentle pressure is exerted, while at the same time it is rotated to the right until it has cut through the tire. The tire should be held as indicated to avoid cutting the opposite side. The stem and inside flange of the

plug are then thoroughly cleaned. Plenty of cement is placed in the hole and upon the portions of the plug which have been cleaned. The pointed end of the plug is then inserted and forced into the tire up to the head. The cap C' is then placed in the cutter and the end of the pointer is placed in the central depression of the head, the free end of the string being slipped over the thumb or finger. By means of the pointer the head is then easily pushed through the hole into the tire. The string is now pulled gently to invert the plug and draw its stem back through the hole and the head against the inner surface of the tire. The tire is then immediately inflated and after the cement has had time to set the end of the plug is cut off. Care should be taken not to get any cement on the back of the plug, which might interfere with its opening out properly when inside the tire.

The cutter makes a perfectly smooth clean cut, so that the plug can be inserted without difficulty, this being greatly facilitated by the conical point. The last-named feature, together with the string arranged to have a central pull, also facilitates greatly the operation of drawing the stem of the plug back through the hole. The central depression in the head of the plug is also of importance, since without it the pointer or punch would be likely to slip.

To protect the cutter, the small disk which it cuts in operation may be allowed to remain therein until the next operation, when it may

be removed by unscrewing the cutter and running the pointer through it.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, the herein-described reversible plug for repairing pneumatic tires, consisting of a cylindro-conoidal stem portion, a head or flange portion formed with a centrally-located depression therein to provide a bearing for a tool in seating the plug, and a pull-cord sewed through said stem portion and secured to pull centrally thereon, said plug being adapted to be inserted into the tire by its stem end and subsequently reversed, substantially as specified.

2. The herein-described reversible plug for repairing pneumatic tires, consisting of a cylindro-conoidal stem portion having a thread or cord extending transversely through it, and extending by its end portions obliquely through the sides thereof to provide two pulling ends, and a beveled head or flange portion having a central depression therein designed to provide a bearing for a tool in seating the plug, said plug being adapted to be inserted into the tire by its stem end and subsequently reversed, as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN SCHADE.

Witnesses:

GEORGE H. PARMELEE,
PHILIP C. MASI.