

(No Model.)

W. S. McCUTCHEON.

IMPLEMENT FOR REPLACING INNER TUBES OF PNEUMATIC TIRES.

No. 570,142.

Patented Oct. 27, 1896.

Fig. 1.

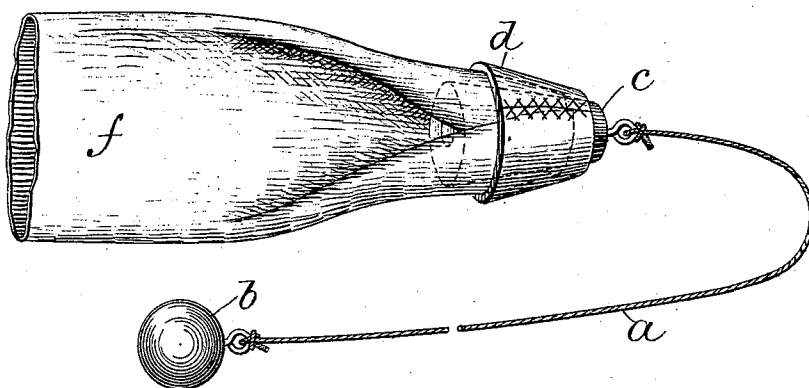
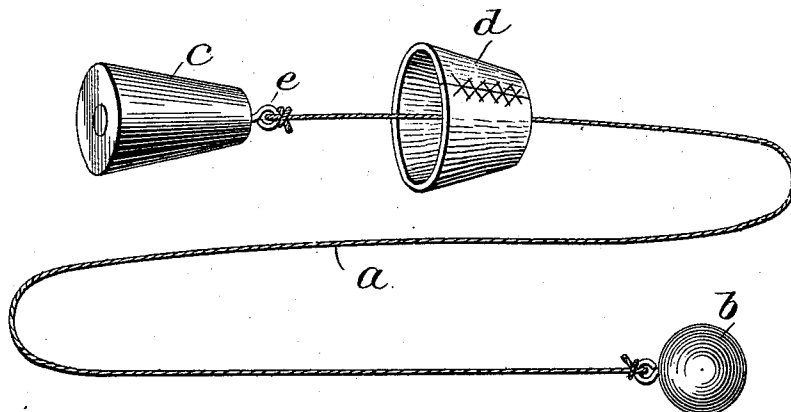


Fig. 2.



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IMPLEMENT FOR REPLACING INNER TUBES OF PNEUMATIC TIRES.

SPECIFICATION forming part of Letters Patent No. 570,142, dated October 27, 1896.

Application filed October 7, 1895. Serial No. 564,913. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. McCUTCHEON, a citizen of the United States, residing at El Paso, in the county of El Paso and State of Texas, have invented certain new and useful Improvements in Implements for Replacing the Inner Tubes of Pneumatic Tires; and I do hereby 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.

The invention relates to what are known as "repair-kits" for bicycle-riders, and the object in view is to provide, as part of such a kit, an improved implement or device for replacing the inner tubes of pneumatic tires.

In that class of pneumatic tires which are repaired by withdrawing the inner air-tube and patching it or replacing it by a new one, instanced, for example, by the well-known Victor machine, the plan of drawing in the new tube or the patched one has heretofore been to tie a weighted cord or string to the end of it and, after dropping the weight into the hollow outer casing and running it around the inner periphery until it reappears at the entrance, to pull the tube into and through the outer one, and such weighted cord or string forms part of all repair-kits furnished with this class of tires. These inner tubes are generally made of pure rubber, and as there is considerable friction between them and the inner walls of the outer casing of the tire the cord has to be so tightly tied around the end as to render them liable to be cut by the cord when the latter is pulled upon.

The particular object of my invention is to provide an improved drawing implement or device that will take hold of the end of the inner tube without liability of cutting it, and that will grip it with a degree of tightness proportionate to the amount of force required to pull it through the outer casing.

With this object in view the invention consists in the device illustrated in the accompanying drawings and forming part of this specification, the construction and operation of which I will now proceed to describe.

In the drawings, Figure 1 is a perspective view of the device, illustrating the manner

of applying it to the inner tube; and Fig. 2 is a similar view of the device without the tube, the parts being separated for better illustration.

Referring more particularly to Fig. 2, *a* and *b* denote, respectively, the cord and weight, which, as heretofore stated, now form part of every kit furnished with machines having the above-described type of pneumatic tire, and which up to the date of my invention constituted the only means known for drawing in the inner tubes. My invention consists in the combination, with this cord or string and weight, of the improved gripping device *c d*, secured at the opposite end of the cord from the weight, and consisting as follows: *c* denotes a tapering plug of any sort of material that will not injure the rubber of the inner air-tube. I prefer to make it of rubber, though it may be made of wood, soft metal, bone, ivory, or other analogous material. I attach the small end of this plug securely to the end of the cord *a*, so that it may be pulled through the tire with this end foremost. *d* indicates a ring or sleeve of some soft light-weight material that will not stretch or abrade or otherwise injure the inner tube. I prefer to make it of leather, but it may, if preferred, be made of celluloid, gutta-percha, or other similar material or of metal. It is made tapering, as shown in the drawings, and is adapted to fit loosely over the small end of the plug *c*, but not so loosely as to allow the plug to be drawn clear through it. The degree of taper of the plug is a matter that may be varied within wide limits, and the taper of the ring should preferably correspond with that of the plug. The cord may be secured to the plug in any suitable manner. A strong and simple way is shown in the drawings, where *e* denotes a metallic staple or eye the shank of which passes lengthwise through the center of the plug and is clenched or upset at the outer end.

The manner of using the device is so clearly indicated in Fig. 1 of the drawings that any description of its operation would seem to be superfluous. It may be stated, however, that the side edges of the end of the inner air-tube *f* are first to be wrapped or folded upon and around the plug *c*, after which the tapering ring *d* is slid down along the cord *a* until

it fits tightly over the plug outside the folded end of the tube, when the latter is ready to be drawn into and through the tire-casing.

In applying the ring to the plug after the tube end has been wrapped around it only a gentle pressure is required, because the pull of the cord on the plug tends to tighten the hold on the tube, and it is characteristic of the device that the greater the resistance to the passage of the tube through the casing the tighter the grip on the tube end will be. It is also to be noted that as the pull on the cord comes in the center of the plug the ring will be tightened on the tube end equally around the periphery of the plug.

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

1. In an implement for replacing the inner tubes of pneumatic tires, a grip for the end of the inner tube consisting of the tapering plug

c adapted for connection at its smaller end with a drawing-in cord, and the tapering sleeve *d* adapted to fit over the plug and clamp the tube end thereon; substantially as described.

2. An implement for replacing the inner tubes of pneumatic tires, consisting of the cord or string *a*, the weight *b* at one end of the same, the tapering plug *c* at the opposite end of the cord or string, and the tapering sleeve *d* adapted to fit over the plug and clamp the tube end thereon; substantially as described.

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

WILLIAM S. McCUTCHEON.

Witnesses:

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