

No. 620,837.

Patented Mar. 7, 1899.

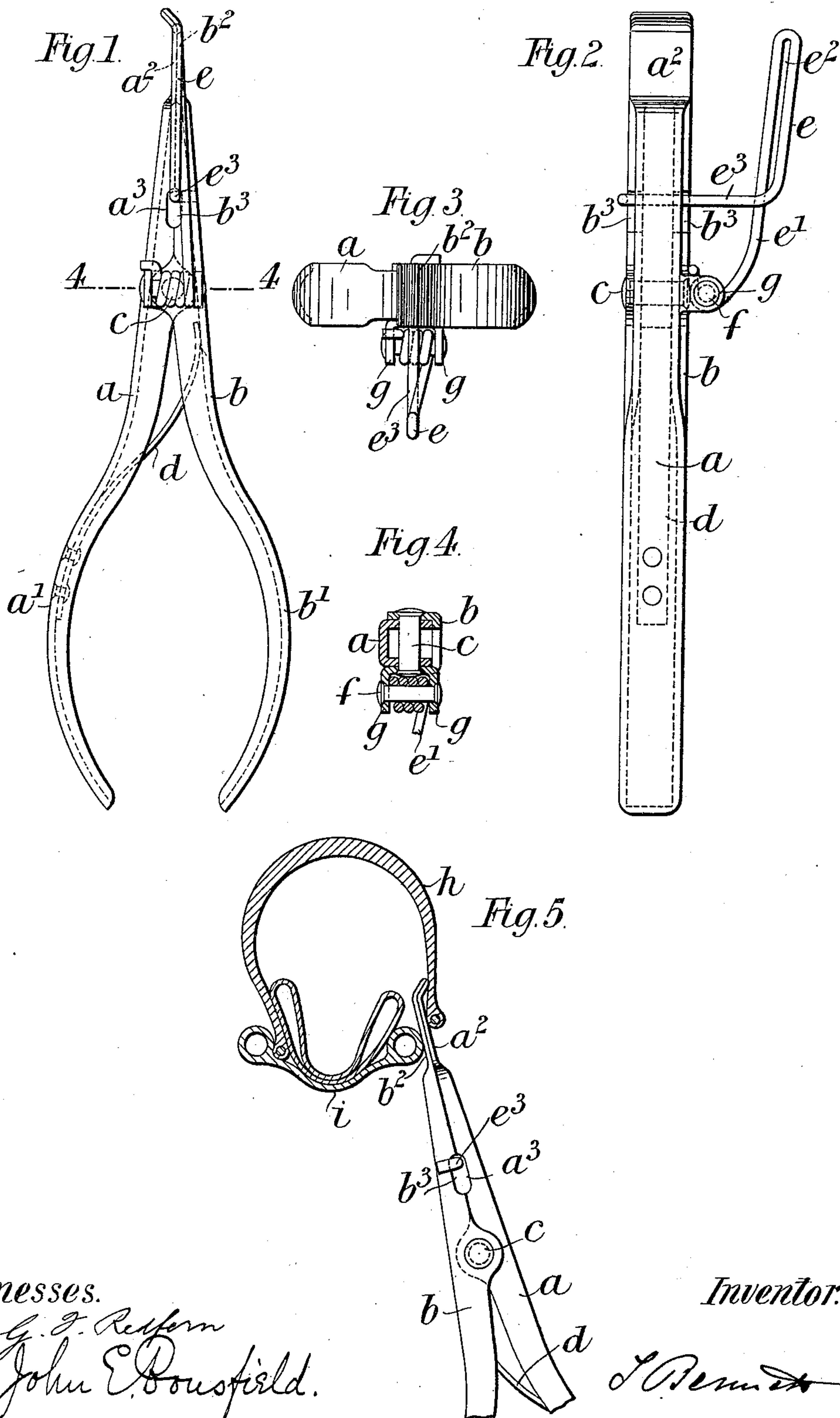
T. BENNETT.

TOOL FOR REMOVING AND REPLACING COVERS OF PNEUMATIC TIRES.

(Application filed Dec. 24, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.

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Fig. 7

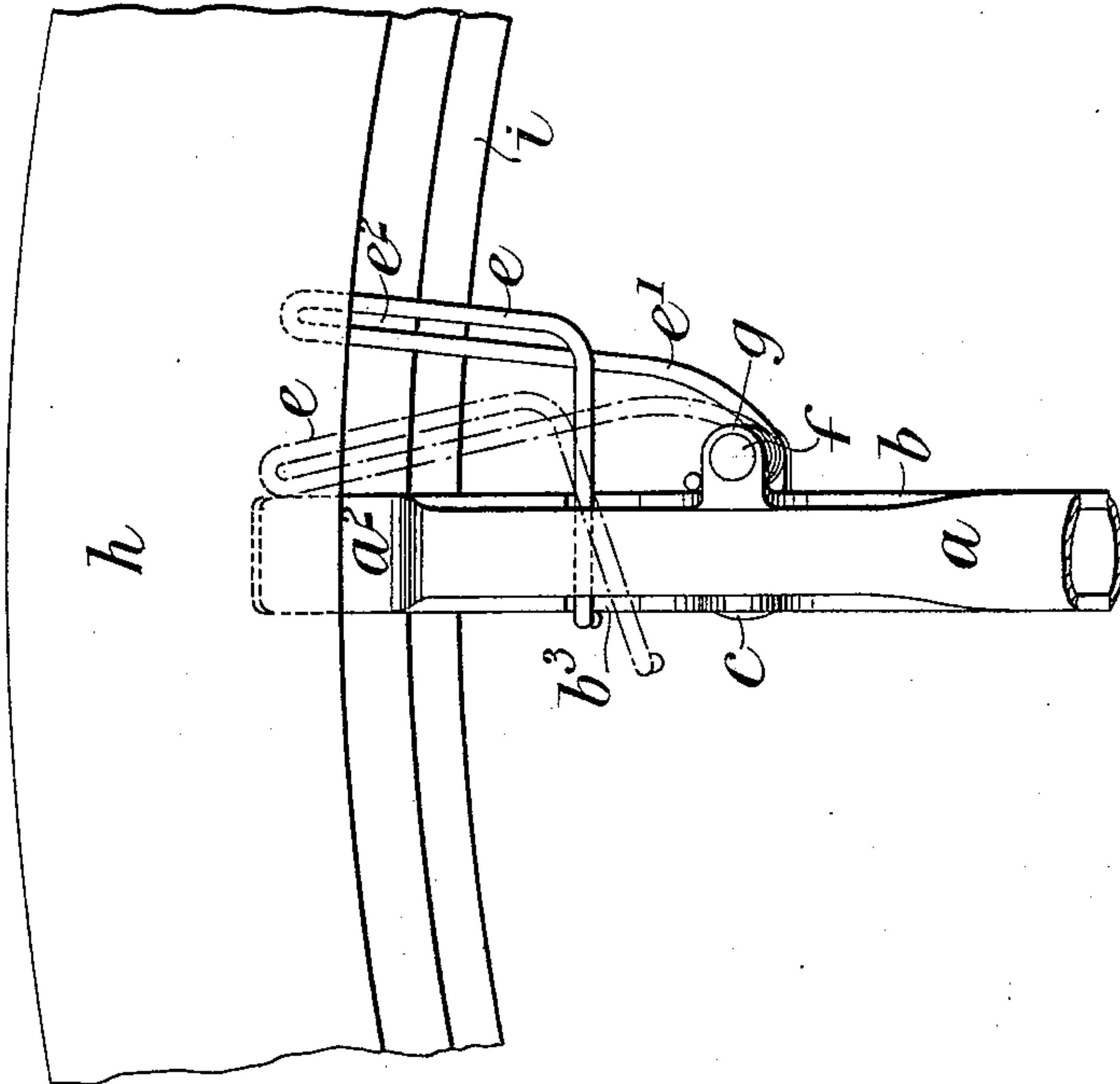
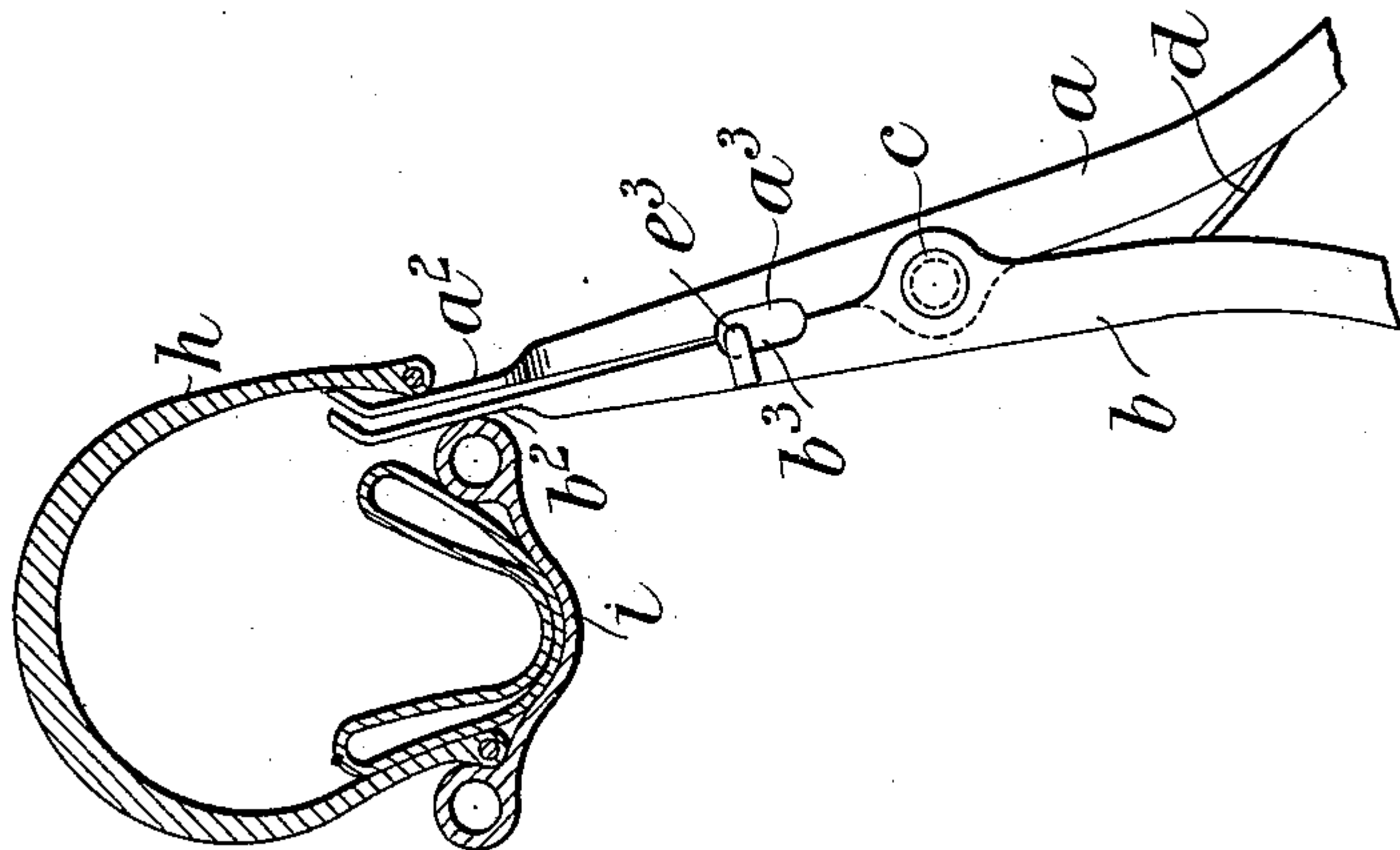


Fig. 6.



Witnesses.

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TOOL FOR REMOVING AND REPLACING COVERS OF PNEUMATIC TIRES.

SPECIFICATION forming part of Letters Patent No. 620,837, dated March 7, 1899.

Application filed December 24, 1898. Serial No. 700,191. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BENNETT, a subject of the Queen of Great Britain, residing at London, England, have invented a new and useful Improved Tool for Removing and Replacing the Covers of Pneumatic Tires, (for which patents have been applied for in Great Britain, No. 17,370, dated August 11, 1898; in Germany, No. 23,275, dated August 25, 1898; in Austria, dated October 17, 1898; in France, No. 270,099, dated October 18, 1898; in Belgium, No. 108,418, dated October 19, 1898; in Switzerland, No. 19,550, dated October 20, 1898; in Denmark, No. 1,120, dated October 22, 1898, and in Hungary, No. 15,125, dated October 24, 1898,) of which the following is a specification.

This invention relates to an improved tool for removing the outer covers of pneumatic tires of the kind provided with endless wires from the rims of wheels and also for replacing them thereon with greater facility than has heretofore been possible.

According to the invention I provide a tool consisting in the combination, with a lever or its equivalent adapted to be inserted under the edge of the tire-cover for raising it, of what may be termed an "advancing" arm or horn, the parts being so arranged that when the tire-cover has been raised the arm springs or can be pushed forward, and being thicker than the lever will be gripped between the edge of the cover and the rim, so as to allow the lever to be advanced up to the arm, and so on, until the tire-cover has been sufficiently removed, as hereinafter more particularly described.

To raise the tire-cover sufficiently to enable the spring or other arm or horn to spring or be pushed forward, various devices or constructions of tool can be employed, and to enable the invention to be clearly understood I will describe one form of tool by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the tool. Fig. 2 is an elevation at right angles to that shown in Fig. 1. Fig. 3 is a plan. Fig. 4 is a section on the line 4 4, Fig. 1; and Figs. 5, 6, and 7 are views illustrating the method of employing the tool for removing the tire-cover.

In the tool shown the lever or its equivalent

is made of a pair of arms $a b$, hinged together by the pin c and each formed at one end as a curved handle a' or b' and flattened at its other end, as shown at $a^2 b^2$, the extreme point of each flattened end being turned up, as clearly shown. d is a spring which normally holds the flattened ends in contact, so that the said two ends form the lever, which is adapted to be inserted between the wheel-rim and the outer cover, as illustrated in Fig. 5.

e represents the arm or horn, which is adapted to the lever $a b$. The said arm or horn is advantageously formed of wire, and when required to act springwise it is fitted to one of the parts $a b$ by being coiled around the pin f , which is riveted or otherwise suitably held between two lugs $g g$, formed upon or secured to one of the hinged arms, (in the drawings the arm b .) The said wire is then turned outward and upward, as shown at e' , and formed into a loop e^2 , the free end being then turned inward, as shown at e^3 , passed through notches $a^3 b^3$, formed in the two parts $a b$, and bent around at the end, so as to limit the outward movement of the loop e^2 . The said loop e^2 is thicker than the flattened end of the lever formed by the ends $a^2 b^2$ of the arms $a b$.

To make use of the improved tool for removing the outer cover of a deflated tire, the flattened end of the tool and the loop e^2 of the spring-arm e are brought together and inserted between the edge of the outer cover h of the tire and the wheel-rim i . The edge of the cover is then prized over the edge of the wheel-rim i by moving the tool-handle downward, as shown in Fig. 5, the end of the spring-arm e and the edge of the flat end of the tool being still in contact, as shown by the dotted lines in Fig. 7. As the loop e^2 is thicker than the end of the lever, it takes all the pressure of the outer cover, leaving the lever end free to move. By now gripping the handle portions $a' b'$ of the parts $a b$ the flattened ends $a^2 b^2$ are separated from one another, as indicated in Fig. 6, so that the loop end e^2 of the spring-arm e is released from the pressure of the cover and will spring forward into the position shown in full lines in Fig. 7, the amount of this forward movement being, as already mentioned, limited by

the hooked end of the said wire arm *e*. The flattened ends of the tool are now allowed to again come in contact by releasing the pressure upon the handles *a' b'*, and the lever 5 portion of the tool is then advanced toward the spring arm or horn *e* and the operation repeated until the outer cover is sufficiently removed from the rim.

The hooked end *e*³ of the spring-arm can 10 be dispensed with, if desired, and instead of the spring-arm I can employ a pivoted arm adapted to be moved and not to spring forward.

It will be obvious that various other means 15 can be employed in lieu of the hinged parts *a b* to effect the desired result—that is to say, to alternately make the end of the lever thicker and thinner than the spring arm or horn *e*, so that the said lever and the said spring- 20 arm alternately take the pressure of the outer cover upon the rim and so that the spring-arm can be alternately released to spring forward and be gripped by the tire to allow the lever part of the tool to be advanced toward 25 it in the manner above described.

To replace the cover *h* upon the rim *i*, it is put in the rim as far as it will go easily. The end of the tool is then inserted between the edge of the cover and the inside edge of the 30 rim where the cover is already on the rim and as near as it will go to the part which has still to be put on, and the tool is worked, as above described. In this case of course the tool-handle points away from the wheel- 35 hub instead of toward it, as when removing the outer cover.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is— 40

1. A tool for removing and replacing pneumatic tires comprising among its members, a lever and a spring-actuated auxiliary arm or horn connected to said lever and having its outer end movable toward and from the said 45 lever, substantially as described.

2. A tool for removing and replacing the covers of pneumatic tires comprising among its members a lever, and a spring-actuated auxiliary arm or horn pivotally connected to 50 said lever and having its outer end movable toward and from said lever, substantially as described.

3. A tool for removing and replacing the covers of pneumatic tires comprising among 55 its members a lever having a flattened outer end, a spreading device secured thereto and an auxiliary arm or horn connected to the said lever and having its upper end movable toward and from the same, substantially as 60 described.

4. A tool for removing and replacing the covers of pneumatic tires comprising among its members a lever having a flattened outer end a spreading-lever pivoted to the said le- 65 ver, and a spring-arm secured to the said lever and having its upper end movable toward and from the same, substantially as described.

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Witnesses:

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