

J. C. HOOVER.
 VEHICLE SPINDLE.
 APPLICATION FILED AUG. 5, 1910.

991,991.

Patented May 9, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

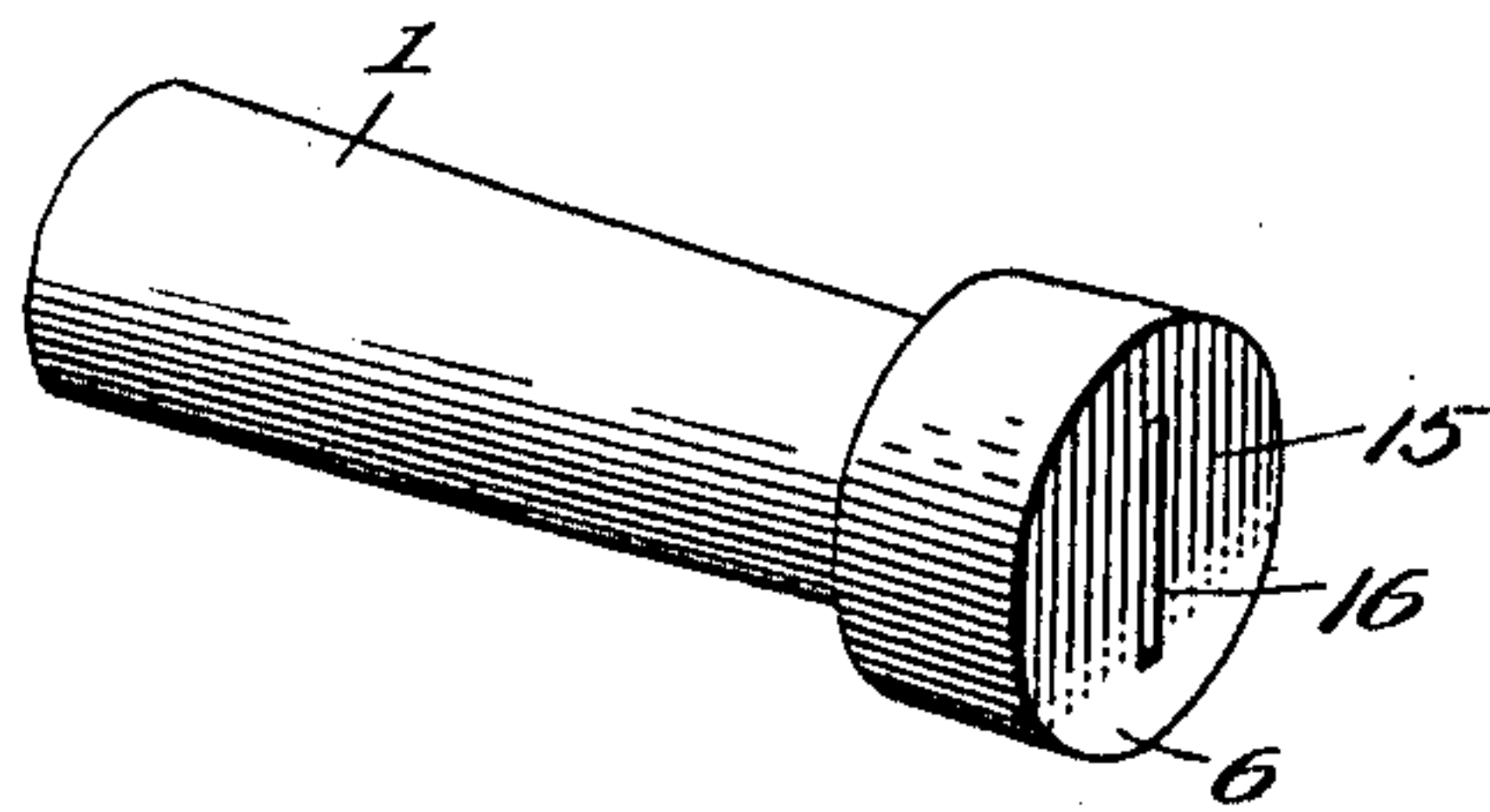


Fig. 2.

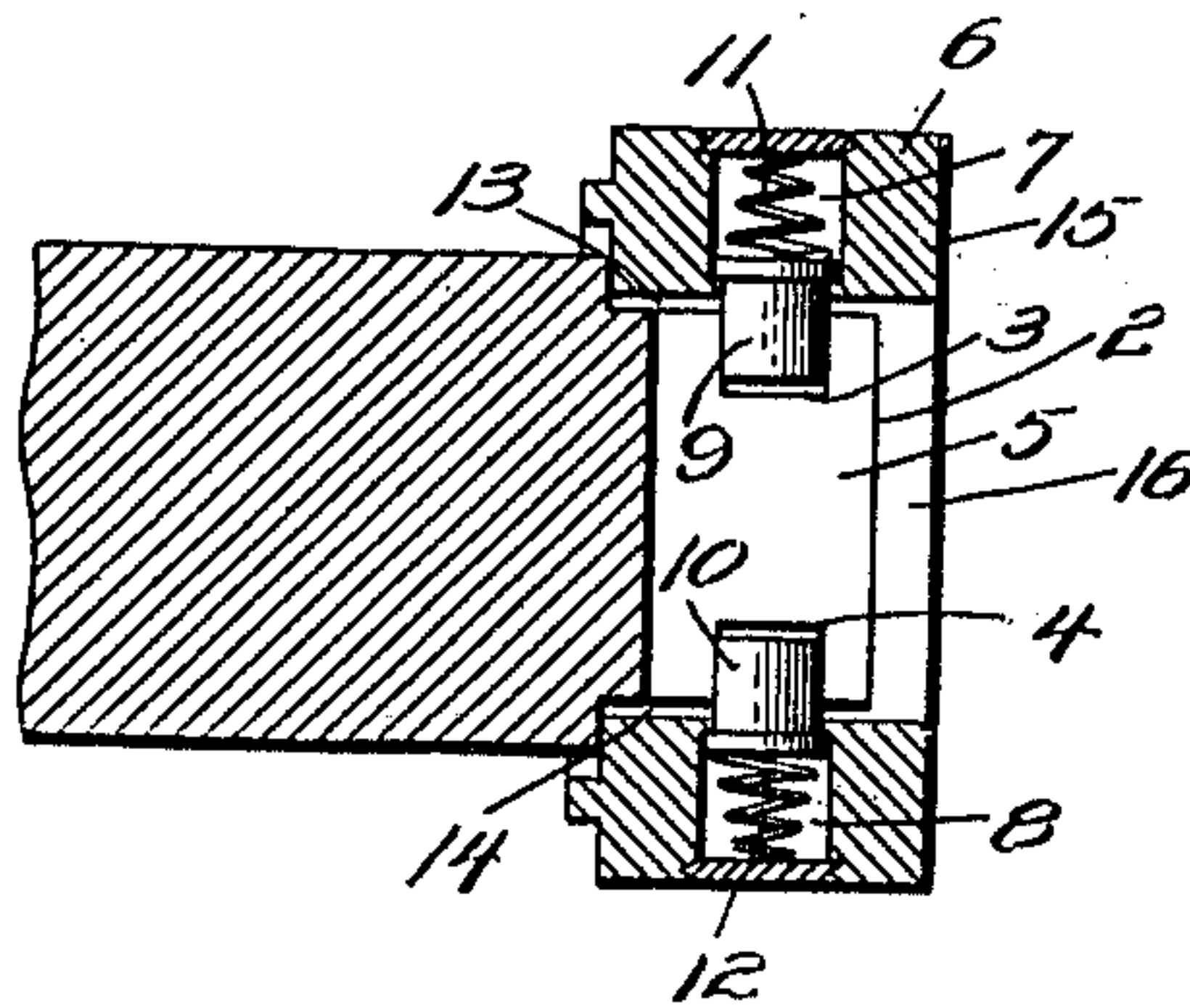
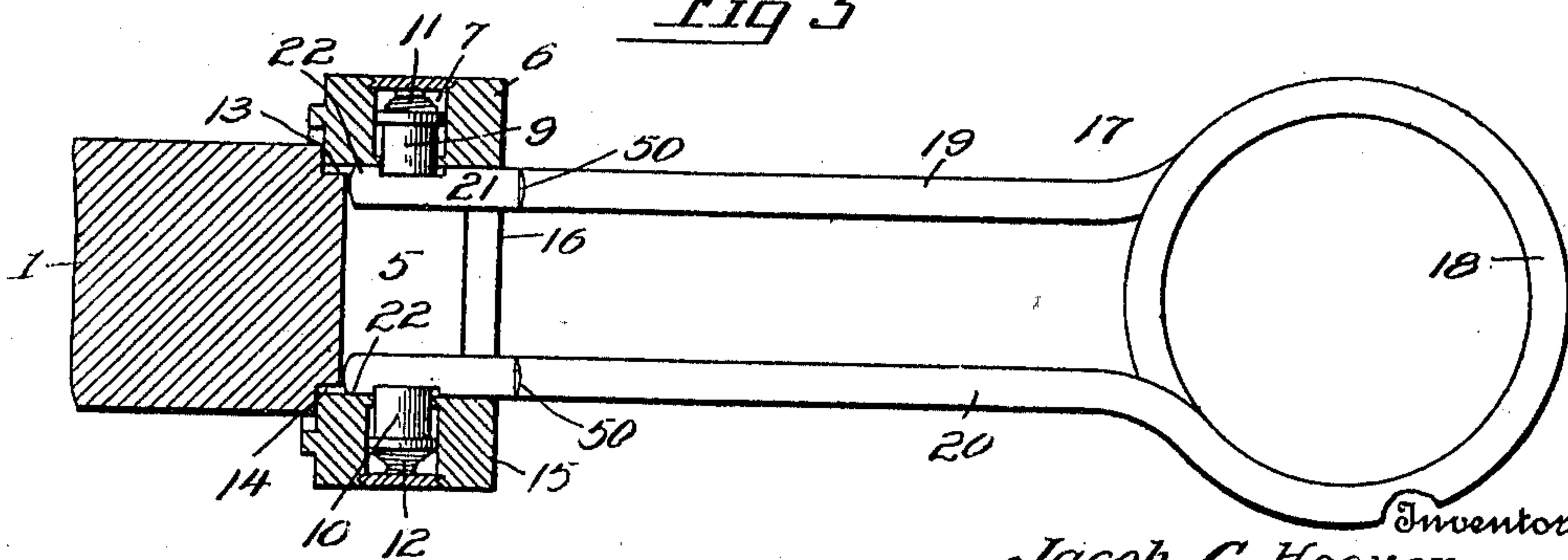


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 4.

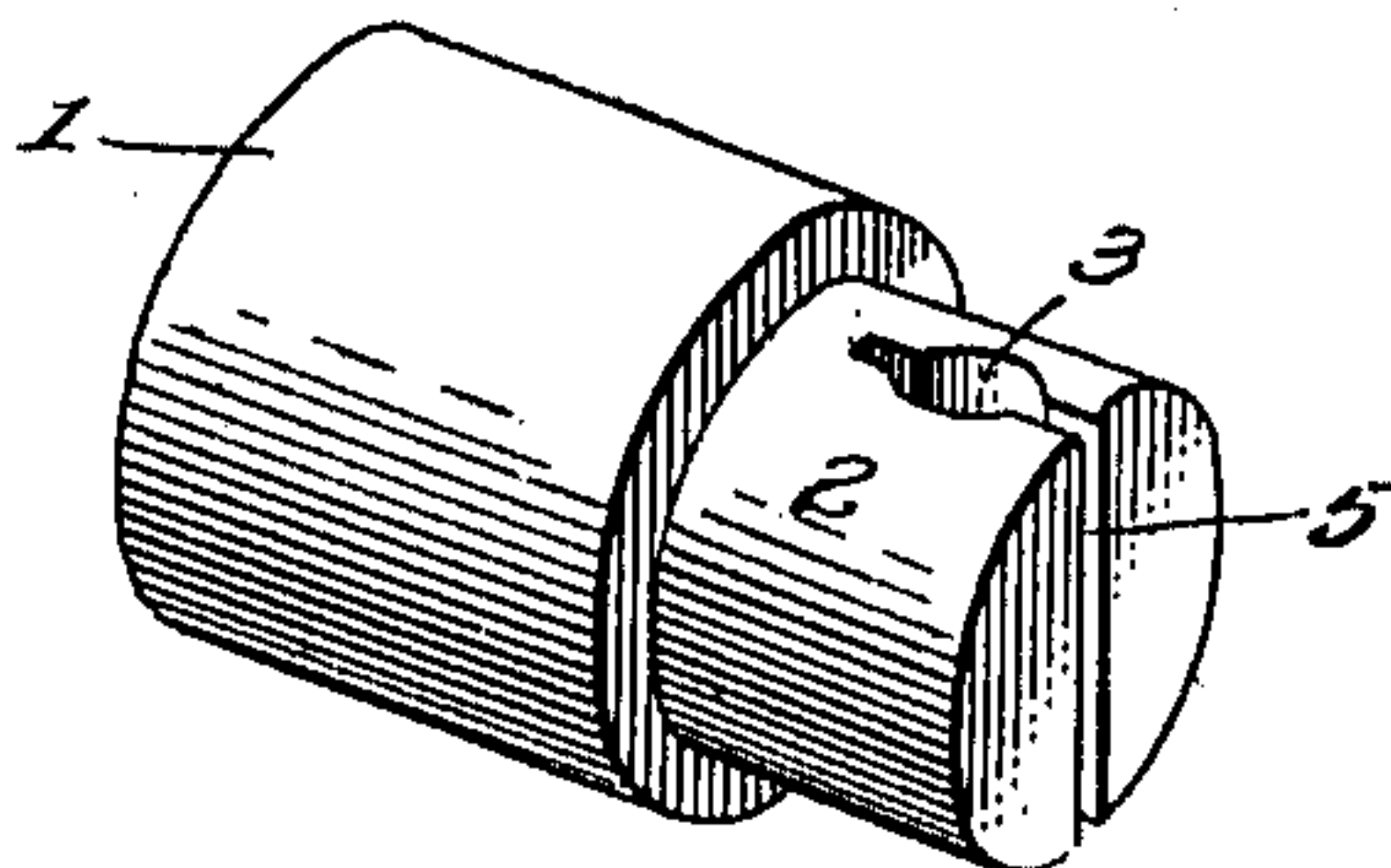


Fig. 5.

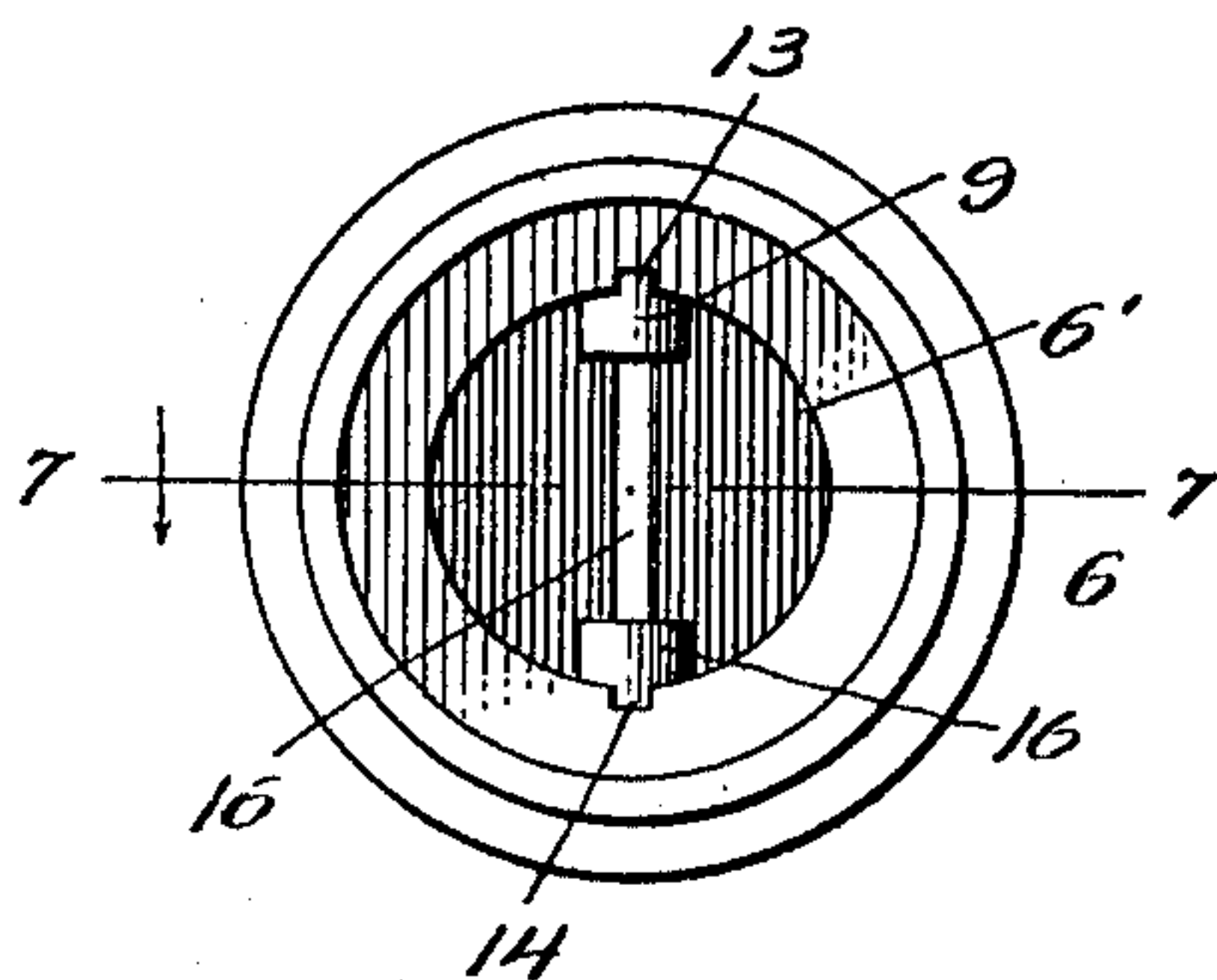


Fig. 7.

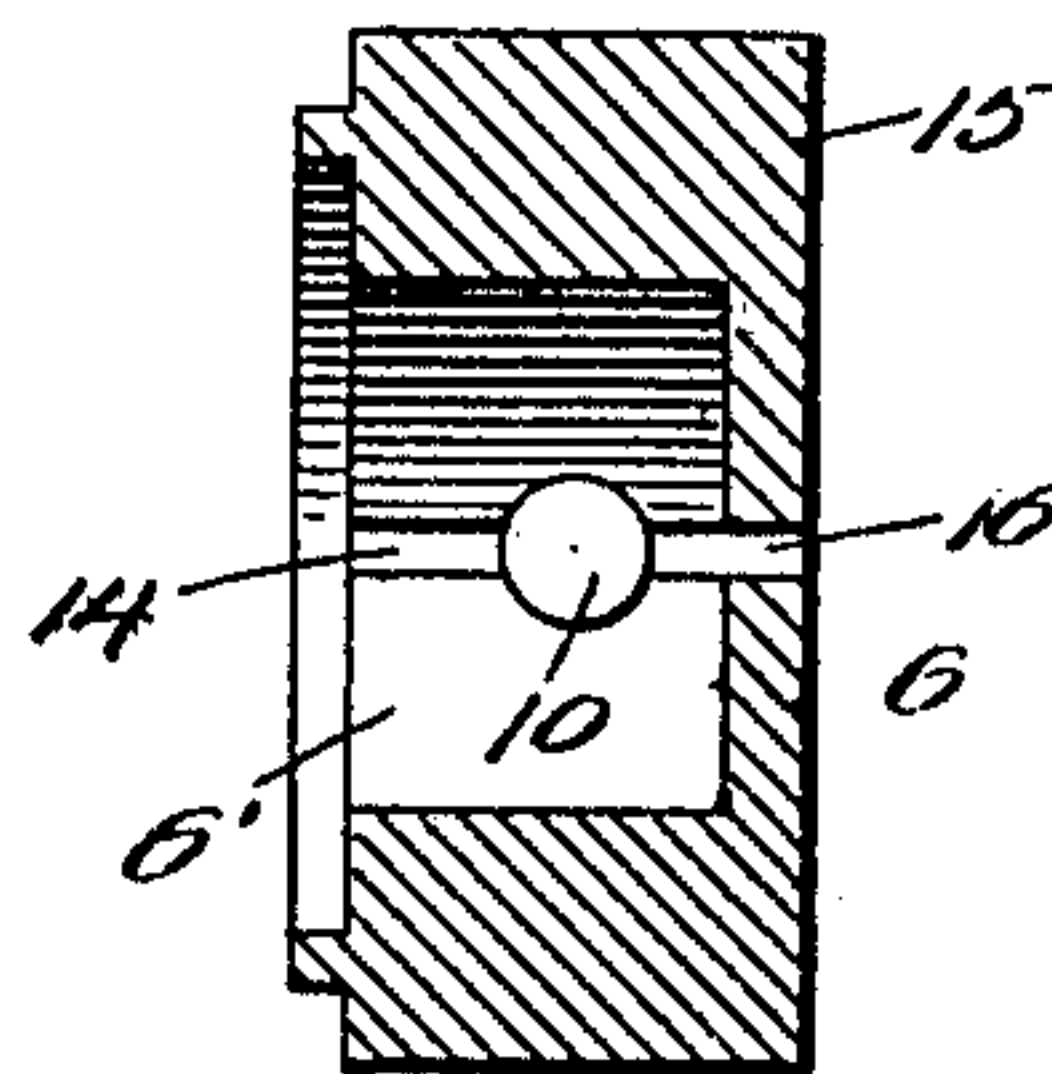
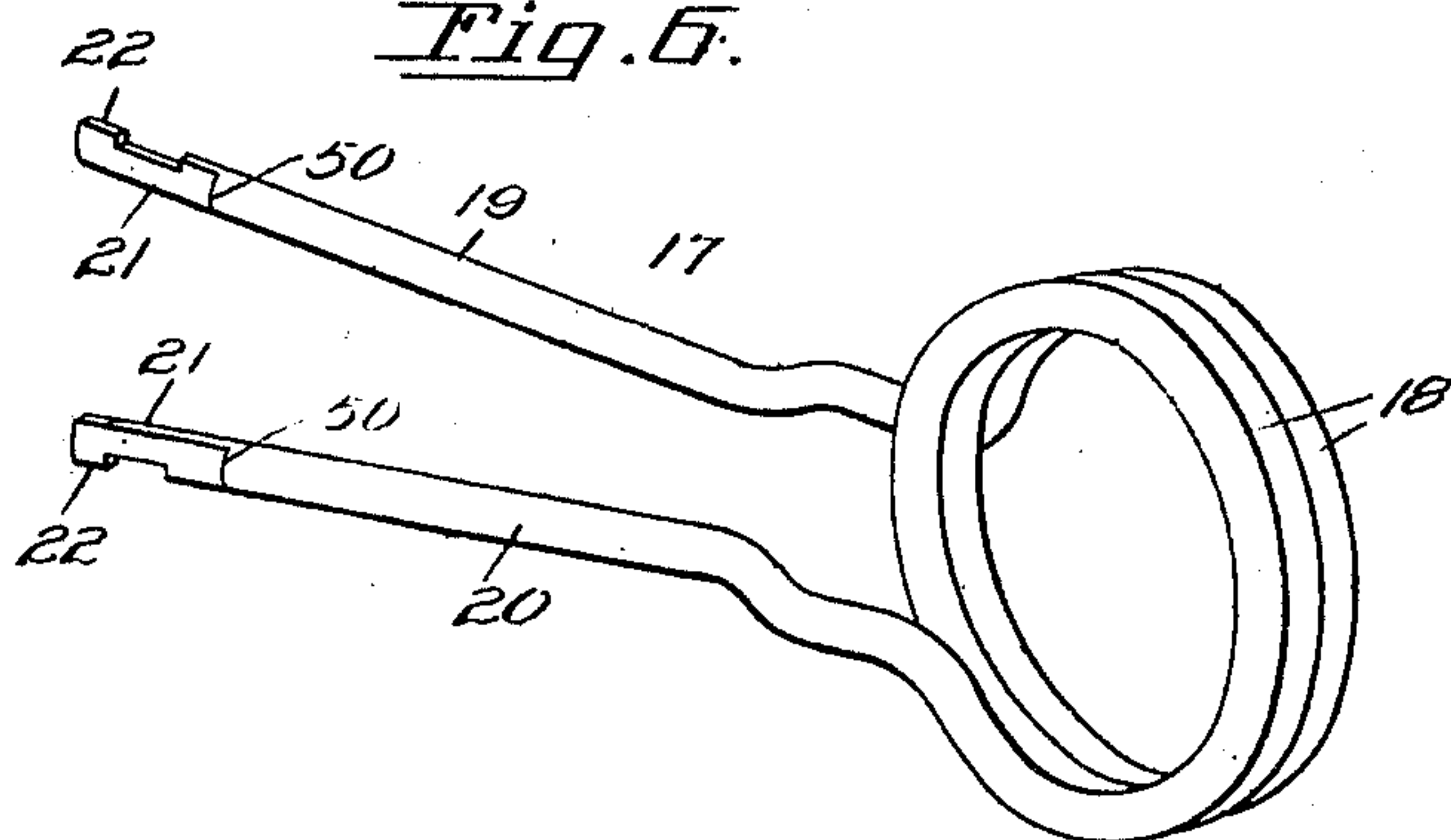


Fig. 6.



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VEHICLE-SPINDLE.

991,991.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed August 5, 1910. Serial No. 575,746.

To all whom it may concern:

Be it known that I, JACOB C. HOOVER, a citizen of the United States, residing at Englewood, in the county of Montgomery and State of Ohio, have invented new and useful Improvements in Vehicle-Spindles, of which the following is a specification.

This invention relates to improvements in vehicle spindles and particularly to novel and effective means for attaching a hub thereto without the employment of threaded nuts, etc.

The object of the invention is to provide a device of this class which is simple in construction, cheap to manufacture, durable, and which is thoroughly efficient.

I attain the above results by the novel construction and arrangement of parts described in detail in this specification and illustrated in the accompanying drawings which form part of the specification; it being understood, however, that the showing in the drawings is merely illustrative and minor details, as to size, proportion and so forth, as fall within the scope of the annexed claim may be made, if desired, without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a perspective view of the outer portion of a spindle and cap constructed in accordance with my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a similar section illustrating the spring key in position for placing the cap upon the spindle or for allowing the withdrawal of the cap from the spindle. Fig. 4 is a detail perspective view of the end of the spindle. Fig. 5 is a plan view of the cap. Fig. 6 is a perspective view of the spring key. Fig. 7 is a sectional view upon the line 7—7 of Fig. 5.

Referring to the drawings, 1 designates the spindle and 2 the reduced extension thereof. The reduced extension of the spindle is non-threaded and is preferably rounded in cross section, and the said extremity is provided with diametrically opposite pockets 3 and 4. The extension 2 is further provided with a transverse longitudinally extending slit 5 which cuts centrally through the pockets 3 and 4 and terminates adjacent the shoulder provided between the spindle 1 and the extension 2.

The numeral 6 designates the cap member which is employed in lieu of the ordinary hub retaining spindle nut. The cap 6 has

its centrally arranged bore or depression 6' of an area sufficient to snugly receive the extension 2 of the spindle. The said bore 6' is provided with diametrically opposite transversely arranged pockets 7 and 8. These pockets 7 and 8 are adapted for the reception of suitable pins 9 and 10, which are partly projected within the bore 6' by suitable expansion springs 11 and 12. The wall of the bore 6' is further provided with longitudinally extending depressions or slits 13 and 14 which are arranged centrally of the pockets 7 and 8 so as to cut through the said pockets, and the outer or closed face 15 of the cap 6 is provided with a slit or opening 16 which registers with the slits 13 and 14. It is to be understood that when the cap 6 is positioned upon the extension 2 of the spindle 1, the slits 13 and 14 register with the slit 5 of the said extension and the pins 9 and 10 are received within the pockets 3 and 4, so that the cap cannot be accidentally removed from the spindle. To position the cap upon the spindle or to remove it therefrom, I employ a spring key member 17. This key is constructed of a single strand of suitable resilient wire, the same being provided with a plurality of circular convolutions 18, from the ends of which extend the outwardly inclined arms 19 and 20. The extremities of these arms are flattened as at 21 and have their extremities provided with offset lips 22. The flattened portions of the arms are of a thickness equaling widths of the slits 16, 13, 14 and 5, and it will be understood that when the arms of the key are forced toward each other they may be readily inserted through the slit 16 in the face 15 of the cap 6 and that when the said arms are released, (after the shoulders 50 of the arms, provided by the flattened extensions, contact the face of the cap,) the lips 22 will swing through the slit 5 and within the slits 13 and 14 directly behind the pins 9 and 10. To remove the cap the key is withdrawn with its arms in spread position, and their lips 22 engaging the pins 9 and 10. To position the cap upon the spindle, the key is first inserted through the slit in the face of the cap to allow its arms to force the pins partly within their pockets.

The outer or projecting portion of the key is adapted to serve as a handle so that the flattened portions of the arms of the key projecting beyond the slits or openings 13 and 14 within the bore 6' may be readily

brought to register with the slit 5 of the spindle, when the cap may be readily slid upon the spindle. The arms of the key are then brought together and the key withdrawn allowing the pins 9 and 10 to enter the pockets 3 and 4 to securely retain the cap upon the spindle.

Having thus described the invention, what I claim is:—

10 In a device of the class described, a spindle, said spindle being provided with a reduced end, said end having a longitudinally extending slit, the spindle being further provided with pockets communicating with
15 the slit, a cap for the reduced extremity of

the spindle, said cap having its face provided with an opening alining with the slit of the spindle, said cap being further provided with interior pockets and spring-pressed pins having enlarged heads positioned within the pockets and adapted to engage with the pockets of the spindle, substantially as and for the purpose set forth. 20

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

JACOB C. HOOVER.

Witnesses:

C. E. HECK,

JOHN W. BERRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
