J. H. CROWELL.

COMBINED CAP AND SOCKET WRENCH USED ON AND IN CONNECTION WITH VALVES OF PNEUMATIC TIRES FOR WHEELS.

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1,017,537.

Patented Feb. 13, 1912.

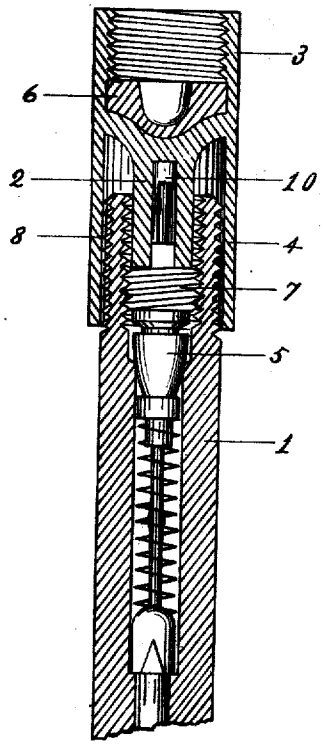

Fig. 1.

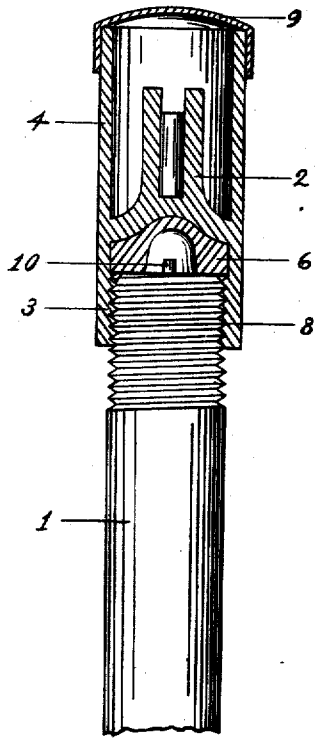

Fig. 2.

WITNESSES:

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COMBINED CAP AND SOCKET WRENCH USED ON AND IN CONNECTION WITH VALVES OF PNEUMATIC TIRES FOR WHEELS.

1,017,537. Specification of Letters Patent. Patented Feb. 13, 1912.

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To all whom it may concern:

Be it known that I, JOHN H. CROWELL, a citizen of the United States, residing at Vineyard Haven, in the county of Dukes and State of Massachusetts, have invented a new and useful Improvement in Combined Cap and Socket Wrenches Used on and in Connection with Valves of Pneumatic Tires for Wheels, of which the following is a specification.

My invention relates to improvements in the combined cap and socket wrench used on and in connection with valves of pneumatic tires for wheels; and the objects of my improvement are, first to guide said wrench; second, to shield said wrench and the end of the slender rod in the center of the valve plunger; third, to provide a dust cap and guard for the open end of the shield. I attain these objects by the mechanism illustrated in the accompanying drawings in which—

Figure 1 is a longitudinal section of a portion of a pneumatic tire valve (with its plunger in elevation) as it appears with socket wrench held in guides and applied to the nut of the plunger; Fig. 2, a longitudinal section of the combined cap and socket wrench, shield, guide and dust cap as they appear screwed on to the end of the valve.

Similar numerals refer to similar parts throughout the several views.

In the drawing 1, indicates the cylindrical body member or shell of the valve with its plunger 5, in normal position. The socket wrench 2, as constructed in combination with cap 3, is shown in Fig. 1, in contact with nut 7, of the plunger 5. The socket wrench 2 is constructed (as shown) integral with and extending from one end and in the axial line of the cap-body 3, and is arranged and adapted for insertion in the threaded bore of the valve body 1, to thereby engage the nut 7 carried by the plunger 5. The guide and shield 4 is also constructed preferably integral with the body of the cap 3, and is tubular and formed, as shown, by the prolongation of the exterior wall of said cap extended beyond the outer end of the socket-wrench 2, so that, when the wrench is to be brought into engagement with the nut 7, the guide and shield 4 will slide longitudinally and freely over the externally threaded end of the valve shell 1, and be rotatable freely thereon in either direction, and thereby hold and guide the wrench concentrically with the nut 7 during the operations of seating or withdrawing the nut and its plunger 5, and further serve as a shield (by reason of its extension beyond the end of the wrench continuing in contact with the end of the valve shell after the nut and wrench have been entirely withdrawn from the bore of said shell) to prevent the nut from falling when entirely withdrawn from the bore, and so protect the valve plunger from injury. Dust cap 9 may be held on to the guide and shield, when the wrench is not in use, by screw threads, or by friction as shown in Fig. 2. The slender rod 10, of the plunger moves freely inside of nut 7 and wrench 2.

Heretofore in removing plunger 5, from valve shell 1, socket wrench 2, the outside diameter of which being a little less than the diameter of the threaded portion of the hole that extends through valve shell 1, is inserted into and guided by said threaded portion to, and in locking contact with nut 7, of the plunger, as shown in Fig. 1, the turning backward of said socket wrench 2, which being guided by said threaded portion, unscrews nut 7, perfectly, until the end of said wrench comes out flush with the end of the valve shell at which point it loses contact with its guide and becomes free to slip off of the nut and thereby not only is it liable to injure the slender rod 10, but thereafter is not easily retained in contact with said nut 7, in order to unscrew it sufficiently to allow the plunger to be removed from the valve shell, and also to the same degree injury and inconvenience occur in screwing said nut to its normal position in the valve shell. Now it is at this point of inconvenience and liability of injury that the value of my improvement asserts itself, as follows, Member 4, being attached to socket wrench 2, and in longitudinal sliding contact with the outer threaded surface 8, of the body member or shell 1, and extending a sufficient distance beyond the end of said wrench, guides said wrench perfectly and keeps it in concentric contact with nut 7, until said nut has been entirely unscrewed from said valve shell, thereby releasing said plunger without injury or accident, and to the same degree said wrench is held in perfect concentric contact with said nut by said member 4, while said nut with its plunger is being

screwed to its normal position in the valve shell. The rubber washer 6, acts as a seal to close the end of the valve 1, when cap 3, is screwed on to it as shown in Fig. 2.

I claim and desire to secure by Letters Patent—

A guide and shield for a socket wrench for valves of pneumatic tires, consisting of a cap having a body provided with a socket wrench projecting from the top of and in the axial line of said body, and having the exterior wall of said body prolonged longitudinally to constitute a tubular guide and shield annularly surrounding said wrench and extending beyond the outer end thereof, and arranged and adapted for longitudinal sliding movement on the end of a valve shell to retain said wrench in concentric engagement with the valve operating nut, and to be rotated on said valve shell in one direction to withdraw the valve and in the opposite direction to seat the valve.

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Witnesses:
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