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SPINDLE BOLT REMOVING DEVICE

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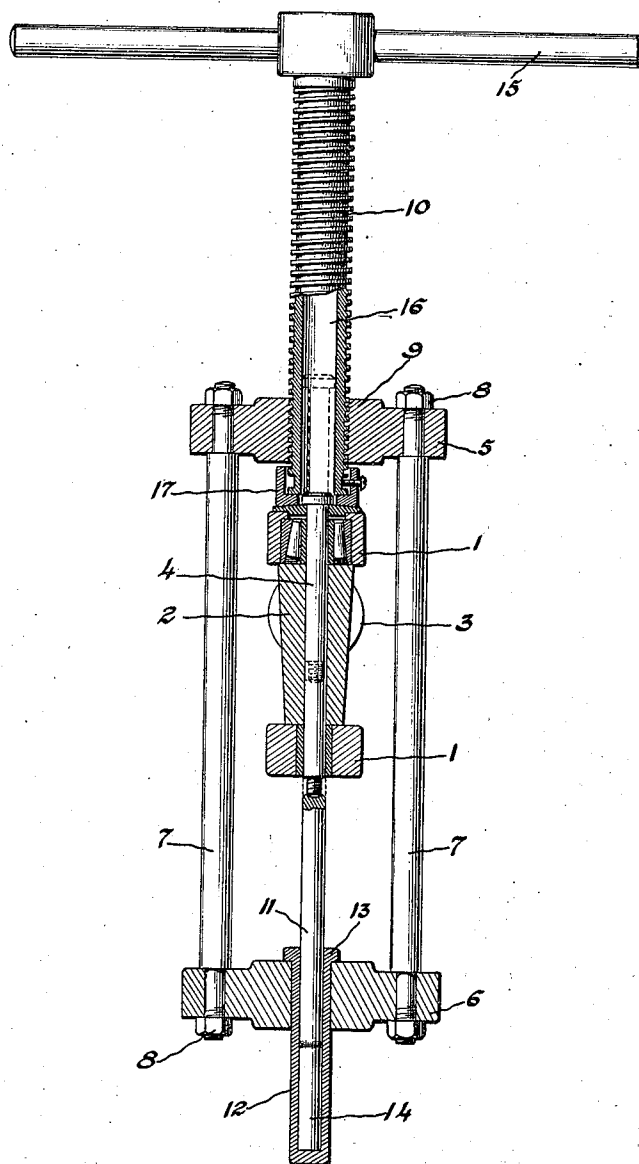


Fig. 1

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CHRISTIAN STAUGAARD, OF DETROIT, MICHIGAN.

SPINDLE-BOLT-REMOVING DEVICE.

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To all whom it may concern:

Be it known that I, CHRISTIAN STAUGAARD, a citizen of the United States of America, and a resident of Detroit, county of Wayne, and State of Michigan, have invented certain new and useful Improvements in Spindle-Bolt-Removing Devices, of which the following is a full, clear, concise, and exact description, such as will enable others skilled in the art to which the invention relates to make and use the same, reference being made therein to the accompanying drawings, which form a part of this specification.

My invention relates to tools or appliances used in the repair of automobiles and similar self-propelled vehicles; and the principal object thereof is to provide an improved device for use in removing the bolts or spindles whereby the steering knuckles which carry the stub axles for the front wheels are pivotally connected with the front axle between the arms of yokes, one at each end of the axle.

A further object of my invention is to provide a device for the purpose stated and by the use of which spindle bolts or steering knuckle pivots may be removed from the yokes and knuckles without injuring them, as by bending or bruising them, breaking the threads at the end thereof, or otherwise, as commonly results when the bolts are removed by the use of a hammer and punch; and which device will be simple in construction and easy to apply and use, and generally effective for the use for which it is designed.

With the above and other objects in view, my invention consists in the improved spindle bolt removing device illustrated in its preferred form in the drawing accompanying and forming a part of this specification, and hereinafter described in detail and finally claimed; and in such variations and modifications thereof, within the scope of the concluding claims, as will be obvious to those skilled in the art to which my invention relates.

Referring now to the drawing:

The figure is a view for the most part in section showing my improved spindle bolt removing device, and illustrating the way in which it is used.

In the drawing, the reference numerals 1, 1 indicate in section the two arms of a yoke at one end of a motor vehicle front axle, and

2 the corresponding steering knuckle which carries a stub axle 3 and which is pivotally connected with the front axle through and by means of a spindle bolt 4 having, ordinarily, a head at its upper end and a threaded portion at its lower end as shown.

The device wherein my invention consists comprises a suitable frame shown as of yoke-like form made up of upper and lower abutment plates or bars 5, 6 connected with one another by two tie rods or bolts 7, 7 extending through holes in said bars, and held in assembled relation therewith by nuts 8; the upper of said bars being threaded at 9 to receive a screw 10 and the lower bar being designed to receive and support a push rod 11 the upper end of which is adapted to engage the lower end of the spindle bolt and push it upward as the screw 10 moves downward; the axes of the screw and push rod being coincident, as shown. This push rod is of slightly less diameter than the bolt passage in the knuckle 2 so that it will not become stuck in the passage as it pushes the spindle upward and along the said passage; and so that the said rod may be readily removed from the knuckle and yoke after having pushed the spindle bolt out therefrom, as will be understood.

Preferably the lower end of the push rod 11 is supported within a tubular socket member 12 closed at its bottom and extending through a hole in the lower plate 6, and having a supporting collar 13 at its upper end; and preferably a rod section 14 which is shorter than the socket 12 (and which is functionally a part of the rod 11) is placed below the rod 11 so that in starting the spindle bolt when more force is commonly necessary than thereafter the section 14 may be removed and the rod 11 used alone, in which case the portion thereof projecting above the supporting member 12 will be short and not be likely to be bent, while after the spindle bolt has been moved a little the section 14 may be replaced and a projecting portion thus provided which is long enough to push the spindle clear through the steering knuckle and yoke and free therefrom.

The screw 10 is operated by a cross handle 15; and the same is provided with an internal longitudinally extending passage 16 of sufficient diameter to permit the spindle bolt 4 to move upward thereinto as it is pushed from the steering knuckle and yoke by the push rod 11 as the screw is screwed down,

as will be understood. The lower end of the screw is provided with a swivel cap 17 which provides a non-rotating force transmitting member between the screw and the upper yoke arm 1, said cap having a hole which registers with the passage 16 to permit upward movement of the spindle bolt, as is obviously necessary.

Having thus described and explained my invention I claim and desire to secure by Letters Patent:

1. In a spindle bolt removing device of the class described, a suitable frame; a screw in threaded engagement with said frame and which screw is provided with an internal passage extending longitudinally thereof; and a push rod supported by said frame and the axis of which is in line with the axis of said screw.

2. In a spindle bolt removing device of the class described, a suitable frame; a screw in threaded engagement with said frame and which screw is provided with an internal passage extending longitudinally thereof; and a push rod made up of two parts adapted to be used together, or one part without the other, said push rod being supported by said frame and the axis thereof being in line with the axis of said screw.

3. In a spindle bolt removing device of the class described, a suitable frame; a screw in threaded engagement with said frame and which screw is provided with an internal passage extending longitudinally thereof; a tubular socket member supported by

said frame and the axis of which is in line with the axis of said screw; and a push rod supported within said socket member and extending therefrom toward the adjacent inner end of said screw.

4. In a spindle bolt removing device of the class described, a suitable frame; a screw in threaded engagement with said frame and which screw is provided with an internal passage extending longitudinally thereof; a tubular socket member supported by said frame and the axis of which is in line with the axis of said screw; and a push rod supported within said socket member and extending therefrom toward the adjacent inner end of said screw, and which push rod is made up of two sections, one shorter than said socket and the other longer than said socket.

5. In a spindle bolt removing device of the class described, a frame comprising upper and lower abutment plates; tie rods whereby said plates are connected together; a screw in threaded engagement with the upper of said plates and which screw is provided with a longitudinally extending internal passage; a tubular socket member supported within a hole provided in the lower of said plates and the axis of which member is in line with the axis of the screw aforesaid; and a push rod supported within said socket and extending therefrom toward the adjacent lower end of said screw.

In testimony whereof I affix my signature
CHRISTIAN STAUGAARD