B. H. HOLDSWORTH.

METHOD OF REMOVING THE REAR WHEELS OF AUTOMOBILES FROM THEIR AXLES.

APPLICATION FILED JAN. 12, 1918.

1,342,907. Patented June 8, 1920.

Fig. 1.

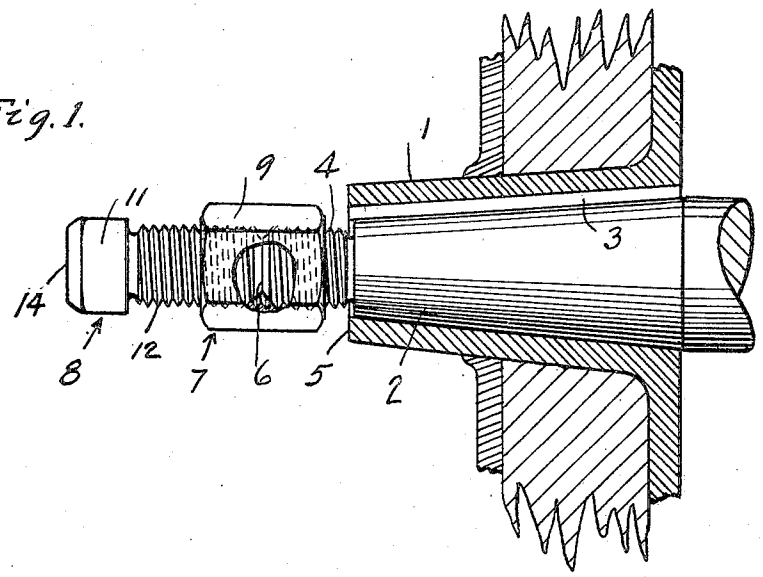


Fig. 2.

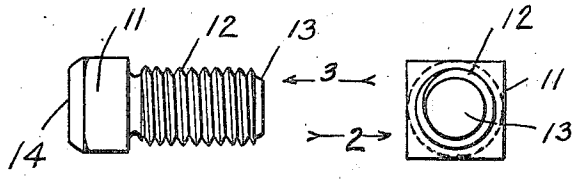


Fig. 3.

Fig. 4.

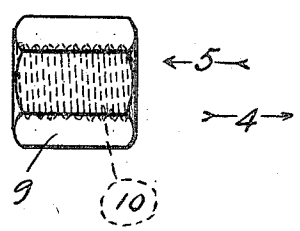
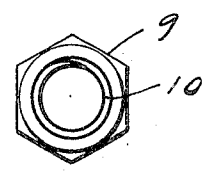


Fig. 5.



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UNITED STATES PATENT OFFICE.

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METHOD OF REMOVING THE REAR WHEELS OF AUTOMOBILES FROM THEIR AXLES.

1,342,907. Specification of Letters Patent. Patented June 8, 1920.

Application filed January 12, 1918. Serial No. 211,619.

To all whom it may concern:

Be it known that I, BYRON H. HOLDSWORTH, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Methods of Removing the Rear Wheels of Automobiles from Their Axles, of which the following is a specification.

My object is to make a simple method of removing the rear wheels from their axles in automobiles, trucks and the like, without any danger of damaging the ends or the threads of the axle from which the wheels are removed.

Figure 1 is a fragmentary sectional view of a rear wheel hub with the axle in place and showing a wheel remover embodying the principles of my invention in position to remove the wheel from the axle.

Fig. 2 is a side elevation of the driving punch as indicated by the arrow 2 in Fig. 3.

Fig. 3 is an end elevation as indicated by the arrow 3 in Fig. 2.

Fig. 4 is a side elevation of the punch holder as indicated by the arrow 4 in Fig. 5.

Fig. 5 is an end elevation as indicated by the arrow 5 in Fig. 4.

The rear wheel hub 1 is driven tightly upon the tapered axle spindle 2 and held non-rotatably by a key 3. The reduced outer end of the spindle is externally screw-threaded to form a nipple 4 for the reception of a nut, the nut butting against the end face 5 of the hub and tending to pull the hub tighter upon the spindle 2. When it is desired to remove the wheel from the spindle the nut is removed from the nipple 4, and usually the hub is set tight upon the spindle and it is a difficult matter to start the hub. The outer end of the nipple 4 is reduced and finished to form a flat bearing surface 6.

My wheel remover comprises a driving punch holder 7 and a driving punch 8. The driving punch holder 7 is made hexagonal to produce wrench seats 9 upon its outer face, and has internal screw-threads 10 to fit the nipple 4. The driving punch 8 is preferably formed of square material to produce wrench seats 11, and the remainder of the material is turned round and has external screw-threads 12 to fit in the threads 10. The tip of the punch is reduced in size and flattened to produce the punching end 13 fitting against the bearing surface 6. The outer corners of the wrench seats 11 are beveled to produce the driving head 14. The driving punch 8 is carefully made of good material properly tempered and the punch is screwed into the holder 7 tight against the bearing surface 6 and then a heavy hammer is manipulated to strike squarely against the face of the head 14 to drive the punch against the axle to drive the axle out of the hub or draw the hub upon the axle toward the punch. It is important that the hammer be carefully manipulated so that the force will be straight in line with the axle and as soon as the hub has started to move a slight distance, the end face 5 of the hub will approach or contact with the inner end of the punch holder 7. Then a wrench may be applied to the punch holder 7 to remove the tool from the nipple 4 and the hub is loose.

In applying the punch holder 7 care should be taken to leave a space between the end of the punch holder and the face 5 of the hub so that the hub may move toward the punch holder a sufficient distance to loosen the hub from the axle.

It should be noted that my device makes a tight fit with the end of the axle as well as with the threads thereof with which it is in engagement and positively prevents any damage being done to the end or the threads of the axle as the device is struck with the hammer in removing the wheel. My device is quickly applied to the end of the axle, and the wheel is readily removed.

My device may also be used in connection with threaded ends of rods or bolts when it is desired to move them longitudinally against resistance.

Various changes may be made in the details of method without departing from the spirit of my invention as set up in the following claim.

I claim:

The method of removing a wheel which consists in providing a driving punch and providing a punch holder, screwing the punch holder upon the screw threaded nipple of the axle, screwing the driving punch into the punch holder against the end of the axle, and driving the driving punch to drive the axle out of the wheel.

In testimony whereof I have signed my name to this specification.

BYRON H. HOLDSWORTH.