

Patented Oct. 1, 1912.

1,039,765.

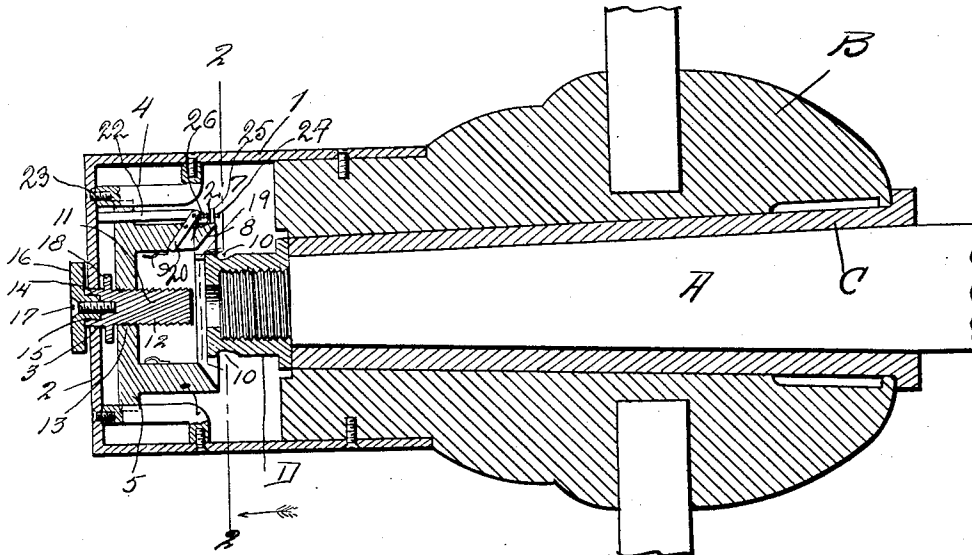
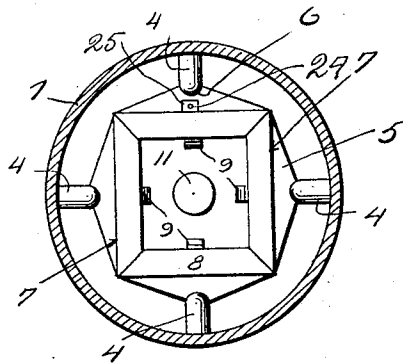


Fig. 1.



UNITED STATES PATENT OFFICE.

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HUB-WRENCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CORRIE C. LEWIS, a subject of the King of England, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Hub-Wrenches, of which the following is a specification.

The invention relates to devices for removing the nut from the end of a wagon spindle and has for its object the provision of a device mounted on the end of the hub that is adapted to engage the nut on the end of the spindle and by rotating the wheel in the proper direction, to remove and replace the nut.

My invention will be described in detail hereinafter and illustrated in the accompanying drawings, in which,

Figure 1 is a longitudinal sectional view of a hub and box of a wagon wheel showing my improved hub wrench in position thereon; Fig. 2, a cross section on the plane indicated by the line 2—2 of Fig. 1 looking in the direction of the arrow; and Fig. 3 is a fragmental section of the nut and wrench showing the mechanism for automatically adjusting the wrench on the nut.

In the drawings, similar reference characters will be used to designate corresponding parts in all views.

A indicates the spindle of an ordinary axle on which is mounted the wheel hub B having the axle box C secured therein. Secured to the outer end of the hub B is a casing 1 having its end closed as shown at 2, by means of a plate formed with a central aperture 3.

4 indicates angular guide pieces secured to the sides of the casing 1 and the end plate 2 in any suitable manner, said angular pieces being preferably circular in cross section.

The nut wrench is mounted in the casing 1 and on the guides 4 and consists of a plate 5 having its sides formed with notches 6 that slidably engage the guides 4 and a rectangular casing 7 extending inwardly from the inner surface of said plate 5 and formed integral therewith. Said casing 7 is adapted to engage a nut indicated at D on the end of the winding spindle A when it is desired to remove or replace it therein. The outer edges of the walls of the casing 7 are formed beveled as shown at 8 and the sides of the walls formed with spring engaging fingers 9 that are adapted to seat in notches 10 in the sides of the nut to hold the nut within

the casing after being removed from the spindle.

11 indicates a shaft journaled in the aperture 3 in the plate 2 and having its surface threaded as shown at 12 to engage a threaded opening 13 in the plate 5. The outer end of the shaft 11 is provided with a rectangular socket 14 in which is mounted a rectangular projection 15 on one side of a knurled wheel 16 secured on the end of the shaft 11 by means of the screw 17 or other suitable fastening.

18 indicates an annular shoulder on the shaft 11 that is adapted to engage the inner side of the plate 2 to prevent outward movement of the shaft longitudinally when in operation.

To insure centering the nut D in the casing 7 of the wrench, I provide said nut D with a projection 19 and the casing 7 with a pivoted stop indicated at 20 and mounted in a slot 21 in one of the jaws of the wrench.

22 indicates a rod slidably mounted in an opening 23 in the plate 5 and pivotally engaging the outer end of the pivoted stop 20. The rod 22 is provided with a reduced extended portion 24 that slidably engages a perforated projection 25 on the casing 7 and 26 indicates a spring mounted on said reduced extension 24 and bearing against the end of the rod 22 and said perforated projection 25 to normally move the rod 22 and the pivoted stop 20 into the position shown in Fig. 3 so that the stop is in position to engage the lug or projection 19 on the nut.

When in use, it will be apparent that by rotating the screw shaft 11 to move the plate 5 toward the hub of the wheel, the rod 22 will be released from engagement with the end plate 2 of the casing 1 and the spring 26 will move the stop 20 into the position shown in Fig. 3 so that the lug 19 on the nut D will be engaged thereby when the wheel is rotated. When said lug 19 engages stop 20 as stated, the operator will know that the nut is in position to have the casing moved into engagement with the nut and by continuing the rotation of the shaft 11 the nut will be engaged by said casing and when the springs 9 engage the notches 10, rotation of the wheel in the proper direction will cause the nut to be unscrewed from the end of the axle spindle and the wheel carrying the nut may be removed from the axle. When the wheel is replaced on the axle, the

nut may be returned to its original position by rotating the wheel in the opposite direction from that in which it is rotated to remove the nut from the spindle. After the
 5 nut has been replaced, the wrench is removed from engagement with the nut by turning the shaft 11 in the opposite direction from its first rotation to move the plate 5 toward the plate 2. When the plate 5 carrying the
 10 wrench reaches the extremity of its outward movement, the free end of the rod 22 by engaging the inner surface of the plate 2 swings the stop 20 into the slot 21 so that it is held out of the position to engage the
 15 lug 19.

Having thus described my invention what I claim is:—

1. In a nut removing apparatus for wheel hubs, the combination with a nut provided
 20 with a lug or projection, a wrench mounted in the wheel hub, and a stop pivotally mounted in one of the jaws of the wrench and adapted to engage the lug on the nut.

2. In a nut removing apparatus for wheel
 25 hubs, the nut provided with a lug or projection, a wrench secured to the wheel hub, a stop pivotally secured on one of the jaws of the wrench, a rod pivotally secured to said stop and slidably mounted on the

wrench, and a spring mounted on said rod 30 and normally tending to hold the stop in position to engage said lug or projection.

3. A nut removing apparatus for wheel hubs comprising in combination with a hub having a casing secured to its outer end, 35 angular guide members secured to said casing, a plate having notches in its edges slidably engaging said guide members, a rectangular wrench casing formed integral with said plate and having its free margin 40 beveled inwardly, the hub casing and plate being provided with alined openings, the opening in the plate being threaded, a shaft rotatably mounted in the opening in the casing and threaded to engage the threaded 45 opening in the plate, a knurled wheel secured to the outer terminal of said threaded shaft and adapted to rotate it, and means mounted on said wrench casing to engage a nut to indicate the proper relative position of said 50 wrench casing and nut to permit said wrench casing to engage the nut.

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

CORRIE C. LEWIS.

Witnesses:

E. E. HUSTON,
 CHARLES H. TOLMAN.

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