

L. H. CONLEY.
SPOKE NIPPLE WRENCH FOR WIRE WHEELS.
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1,335,092.

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Fig. 1.

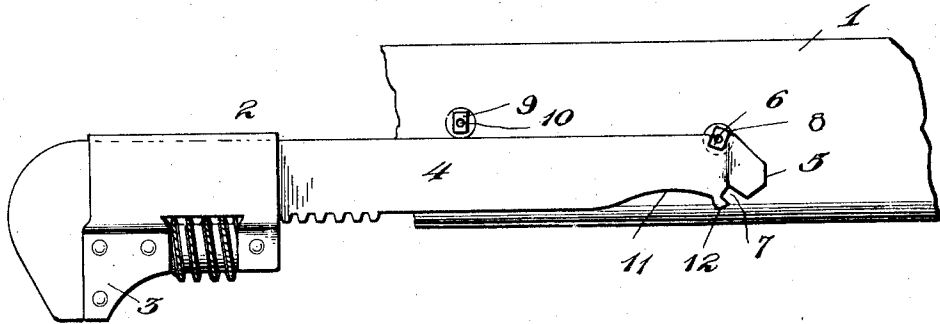


Fig. 2.

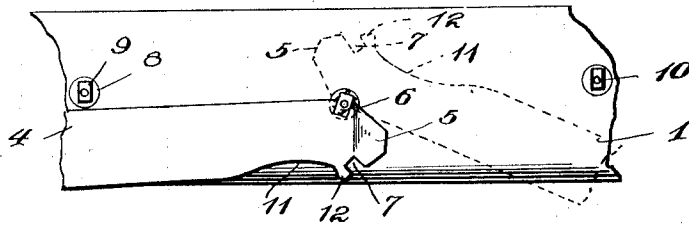
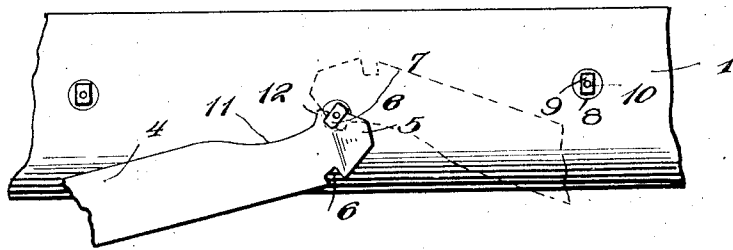


Fig. 3.



WITNESSES
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LAFAYETTE H. CONLEY, OF SAULT STE. MARIE, MICHIGAN.

SPOKE-NIPPLE WRENCH FOR WIRE WHEELS.

1,335,092.

Specification of Letters Patent.

Patented Mar. 30, 1920.

Application filed August 5, 1918. Serial No. 248,421.

To all whom it may concern:

Be it known that I, LAFAYETTE H. CONLEY, a citizen of the United States, residing at Sault Ste. Marie, in the county of Chippewa and State of Michigan, have invented a new and useful Spoke-Nipple Wrench for Wire Wheels, of which the following is a specification.

This invention has reference to spoke-nipple wrenches for wire wheels, and its object is to provide a spoke wrench by means of which the screw nipple holding the spoke to the rim of the wheel may be tightened or loosened, as desired, from one side of the wheel and with a minimum number of applications of the wrench.

Ordinarily spoke-nipple wrenches are interfered with by the spokes to an extent that they must be applied on opposite sides of the wheel, the screw nipples being made of round stock with two flats at diametrically opposite sides of the nipple for the application of the wrench, and it is because of such construction that the ordinary spoke-nipple wrench must be used in the manner stated. The ordinary spoke-nipple wrench requires four applications of the wrench to each complete revolution of the nipple and more applications of the wrench to those nipples on opposite sides of the valve stem.

In accordance with the invention, the spoke wrench is provided with two oppositely disposed receptacles adapted to grip the nipple at the flattened portion and these receptacles are so related that with two applications of the wrench to a spoke nipple and without the necessity of turning the wrench over or applying it from opposite sides of the wheel, the nipple may be given a complete revolution, whereby the setting up or taking down of the wheel is materially facilitated.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed and modified so long as such changes and modifications mark no material departure from the

salient features of the invention as expressed in the appended claim.

In the drawing:—

Figure 1 is a plan view of the wrench showing a small portion of the wheel rim to illustrate the operation of the wrench.

Fig. 2 is a view similar to Fig. 1 and illustrating a step in the operation of the wrench.

Fig. 3 is a view similar to Fig. 1 illustrating another step in the operation of the wrench.

Referring to the drawing, there is shown a small portion of a rim 1 of a wire wheel, the particular showing being of a bicycle wheel but may be taken as indicative of an automobile wheel, since the structures are similar and vary mainly in size.

There is also shown a wrench 2, such wrench being in the nature of a combination tool, with one end 3 constituting a nut wrench with a stem 4, while the end of the stem remote from the nut wrench is tapered to constitute a screw-driver bit 5. Adjacent to the screwdriver end of the stem 4 the edge portions of the stem have notches 6, 7 respectively, formed therein, these notches being of approximately square outline so as to receive the flattened sides 8 of the nipple 9 such as is customarily provided to hold wire spokes 10 of a wire wheel, the nipples being employed to adjust the tension of the spokes.

The bit 5 is located at the extremity of the stem in the longitudinal center line thereof, the notches 6, 7 being placed at opposite sides of the bit, the side walls and faces of the latter being beveled.

The stem 4 may be formed adjacent to the notch 7 with an indentation 11 and a projection 12 close to the notch 7 so that the indentation 11 and projection 12 may be employed as a spanner to adjust the ball bearing cones or for other purposes.

It will be understood, however, that the stem 4 with the notches 6 and 7 may be used alone, that is, without the presence of the other structures described as parts of the wrench as a whole.

It is noted that the handle or stem is substantially uniform in width throughout, except where the notches are provided, at which point the stem or handle is somewhat

reduced in width. It is important that the width should not be greater at the point where the notches are provided, for if an enlarged head or hub were provided, it would tend to defeat the purposes of this invention.

The notches 6 and 7 are in acute angular relation to the longitudinal center line of the stem 4, the notch 6 being at an angle of about 32° to a line perpendicular to the longitudinal center line and the notch 7 being at an angle of from 60 to 65° to a like perpendicular line. The notches 6 and 7 enter the respective opposite sides of the stem 4, which latter may be of flat form and are close to the end of the stem.

Now, because of the presence of the two notches 6 and 7 in about the angular relation stated, a nipple 9 may be engaged in one of the notches of the wrench, the notch first employed depending upon the position of the nipple. If it be assumed that the nipple is so positioned that it is necessary to first use the notch 6 with the stem 4 close to an adjacent nipple, as indicated in Fig. 1, and that the proposed turning of the nipple is to be counter-clockwise, as viewed in Fig. 1, then the nipple is turned until the stem 4 is stopped by a nipple or spoke in its path. The stem 4 is then withdrawn from the partially turned nipple and without turning the stem over it will be found that the nipple may be seated in the other notch 7 and have the complete turn imparted to the nipple before again stopped by the engagement of a spoke or nipple with the stem 4. Thus by two applications of the wrench from the same side of the wheel the nipple may be given a complete turn or within two or three degrees of a complete turn.

The second movement is indicated in Fig. 3. In this manner the spokes may be tightened in the rim or loosened with respect to the rim expeditiously and with a minimum amount of applications of the wrench, the invention permitting the tightening or loosening of the spokes with but two applications of the wrench for each turn of the nipple, while in the customary form of nipple wrench four applications are required. The saving in applications of the wrench is particularly noticeable with respect to those nipples on opposite sides of the wheel tire where projecting through the rim, since with the ordinary wrench the number of necessary applications of the wrench to the nipple in such situation is multiplied.

When the wrench is first applied to a

spoke nipple it may be at almost any angle to the face of the wheel, but as soon as the wrench is turned so that the handle is stopped by a spoke then the flats on the flattened portion of the nipple are in position to be engaged in the opposite notch without the necessity of turning the wrench over or applying it from the other face of the wheel.

It does not make any particular difference as to the exact location of the notches but the angle of the notches to each other and to the longitudinal center line of the handle should not vary markedly from the angles given.

The provision in one tool of a nut wrench, a spoke wrench and the screw driver is advantageous in that the three tools named are particularly useful in connection with a bicycle but are usually not included in the tool kit furnished with the bicycle. Moreover, the usefulness of the device is increased without a corresponding increase in cost. The screw-driver is useful in adjusting cones when the nut that tightens the wheel to the frame is loosened, and is also very convenient in removing cemented tires from the wheel rims for a well cemented tire is difficult of removal except by the use of a pointed instrument to start it.

Of course, it will be understood that the spoke wrench is useful in replacing broken spokes as well as in tightening the spokes and in truing the wheels.

What is claimed is:—

A spoke-nipple wrench for wire wheels for turning a spoke nipple a complete revolution from the same side of the wheel by two applications of the wrench, comprising an elongated flat, rigid, one-piece stem or handle with a nipple-engaging notch in each of the two side edges of the handle near one end thereof, that portion of the stem or handle adjacent said notches being no greater in width than the rest of the handle or stem, the notches being substantially identical in size and each slanting outwardly toward said end from the longitudinal center line of the stem at an acute angle thereto, the angle of one notch being greater than that of the other notch with respect to a line perpendicular to the longitudinal center line of the stem.

In testimony that I claim the foregoing as my own I have hereto affixed my signature.

LAFAYETTE H. CONLEY.

Witnesses:

BERNICE E. BRUBAKER,
LOLA F. COX.