W. L. RINGLING.

WRENCH.

APPLICATION FILED MAR. 30, 1917.

1,276,071. Patented Aug. 20, 1918.

FIG. 1.

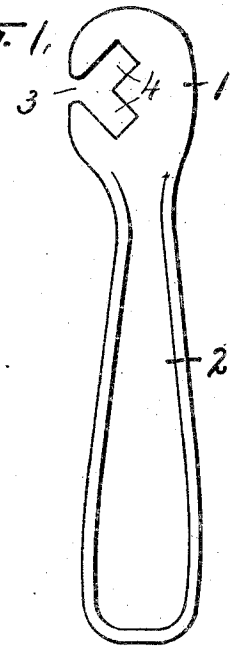


FIG. 2.

FIG. 5.

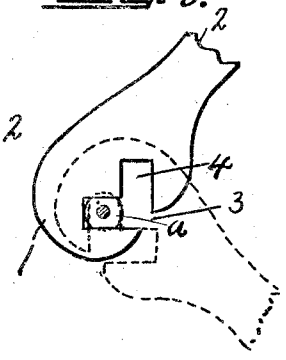


FIG. 3.

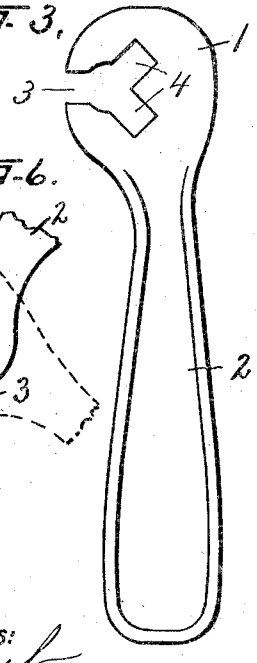


FIG. 6.

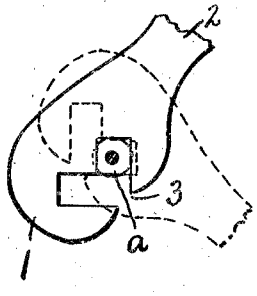
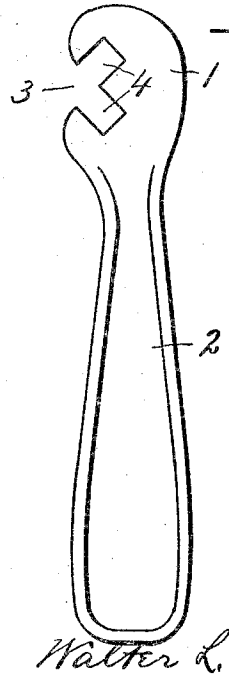


FIG. 4.



WITNESSES:

H. Hurst

Walter L. Ringling INVENTOR

BY Howard P. Denison

ATTORNEY.

UNITED STATES PATENT OFFICE.

WALTER L. RINGLING, OF GENEVA, NEW YORK, ASSIGNOR TO NATIONAL WIRE WHEEL WORKS, INC., OF GENEVA, NEW YORK, A CORPORATION OF NEW YORK.

WRENCH.

1,276,071. Specification of Letters Patent. Patented Aug. 20, 1918.

Application filed March 30, 1917. Serial No. 158,585.

To all whom it may concern:

Be it known that I, WALTER L. RINGLING, a subject of Great Britain, and a resident of Geneva, in the county of Ontario, in the State of New York, have invented new and useful Improvements in Wrenches, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in wrenches, preferably of the one-piece type, adapted to be used more particularly in screwing and unscrewing the threaded nipples which attach the ends of wire spokes to the rim of a vehicle wheel, although it is evident that it may be used for many other purposes, where the movement of the wrench is limited to a relatively short arc.

These nipples are usually flattened on two sides only for the reception of a wrench, and in view of the fact that the arc of movement is limited to considerably less than 180°, it is practically impossible to use an ordinary wrench without considerable inconvenience and loss of time in readjusting it for successive turning movement of the nipple, and the primary object of my invention is to obviate these difficulties and to render the operation of tightening or loosening the nipples more expeditious by providing the head of the wrench with a plurality of recesses arranged about a common center at an angle to each other and communicating with an opening through one edge of the head, whereby the wrench may be easily and quickly placed around the spoke and either one of the recesses engaged with the angular portion of the nipple as may be most convenient, thereby permitting successive reëngagements of the wrench with the nipple by moving the same through relatively short arcs.

Other objects and uses will be brought out in the following description.

In the drawings—

Figure 1 is a side elevation of the preferred form of wrench, in which the opening in the edge thereof is of somewhat less width than that of the angular recesses which are to engage the angular portion of the nipple, and preferably of just sufficient size to permit the passage of the spoke and not the nipple therethrough.

Fig. 2 is an edge view of the same wrench.

Fig. 3 is a face view of a modified form of wrench, embodying, in addition to the angular recesses shown in Fig. 1, a somewhat larger opening in the edge thereof to be used for turning the nipples if more convenient than the use of either of the angular recesses.

Fig. 4 is a face view of a still further modified form or wrench, somewhat similar to Fig. 3, except that the edge opening is still larger to allow the nipple to pass therethrough for engagement with either of the angular recesses which communicate with said edge opening.

Figs. 5 and 6 are detail views of portions of the wrench showing different position of adjustment in turning the nipple.

The wrench shown in Figs. 1 and 2 comprises a head —1— and handle —2—, the head being of somewhat greater width than the handle and provided with an opening or mouth —3— in one edge communicating with a plurality of, in this instance two, angularly disposed recesses —4— which are arranged at right angles to each other about a common center just at the inside of the edge opening or mouth —3—, said recesses being preferably rectangular in plan, or provided with opposite parallel edges, and of just sufficient width to receive the nut or nipple with which they are adapted to engage, thus forming two sets of jaws with a single mouth common to both sets, the inner side of each recess constituting one jaw and the other side constituting the other jaw of the same pair.

Under this construction, the outer jaw of each pair is somewhat longer than the inner jaw so that both of the outer jaws extend in planes intersecting each other at substantially right angles, while the inner jaws also intersect each other at right angles, but owing to the fact that they are considerably shorted than the outer jaws, the space at the junction of the recesses —4— and opening —3— is somewhat wider than the width of either of the recesses to permit the nipple to turn therein, or rather to permit the wrench to turn around the nipple when the latter is disengaged from either of the recesses —4— without entirely removing the wrench from the spoke or nipple.

In Fig. 3, the opening at the junction of the recesses —4— is still larger than that shown in Fig. 4, by cutting away portions

of the outer jaw, while the edge opening —3— is of approximately the same width as that of the recesses —4—, so that it may be used for turning the nipple in a manner similar to that for which the recesses —4— are used.

In Fig. 4 the edge opening —3— is of slightly greater width than that of either of the recesses —4— to permit the wrench to be placed directly over and upon the nipple in the operation of engaging either of the recesses —4— with said nipple, and at the same time permitting the wrench to be turned about the nipple without complete removal therefrom when both recesses are disengaged from such nipple.

In Figs. 5 and 6, I have shown portions of the wrench in different positions of adjustment for turning the nipple a half revolution.

For example, in Fig. 5, assuming that the flattened sides of the nipple, as —*a*—, are at right angles to the circumferential plane of the spokes, and that it is desired to turn it to the right. Then the recess —4— nearest the end would first be engaged with the nipple, and the wrench turned to the position shown by dotted lines, the two positions indicating approximately the limits of movement of the wrench by reason of the spokes.

After the nipple has been turned a quarter turn from the position shown in Fig. 5 to the position shown in Fig. 6, in which latter position the flattened sides of the nipple will be parallel with the plane of the spokes, the wrench is then shifted to engage the other or innermost recess —4— with the flattened sides of the nipple as shown by full lines in Fig. 6, and the wrench again rotated in the same direction to the position shown by dotted lines for turning the nipple another quarter turn, thus completing the half turn and bringing the flat sides of the nipple again at right angles to the plane of the spokes, whereupon the operations just described will be repeated until the nipple is adjusted to the desired position.

What I claim is:

1. A wrench of the character described having a head provided with an opening in one edge, and a plurality of recesses leading from said opening at an angle to each other, the opposite sides of each recess forming a pair of nut-engaging members.

2. In a wrench of the character described, a head having an opening in one edge, and a plurality of recesses diverging inwardly from and communicating with said opening, the walls of each recess forming nut-engaging members.

3. A wrench of the character described having a head provided with an opening in one edge, and a pair of recesses diverging inwardly from said opening at substantially right angles to each other, the walls of each recess forming a pair of nut-engaging members.

4. A wrench of the character described having an opening in one edge, and recesses extending inwardly from said opening at an angle to each other, the sides of each recess being substantially parallel and spaced apart to form nut-engaging members.

5. A wrench of the character described having a head provided with an opening in one edge, and a pair of recesses extending inwardly from said opening at substantially right angles to each other, the sides of each recess being substantially parallel and having one side shorter than the other, the outer sides being the longer, said sides being spaced apart to form nut-engaging members.

In witness whereof I have hereunto set my hand this 22d day of March, 1917.

WALTER L. RINGLING.

Witnesses:

GEORGE G. HANDLAN,

HENRY B. GRAVES.