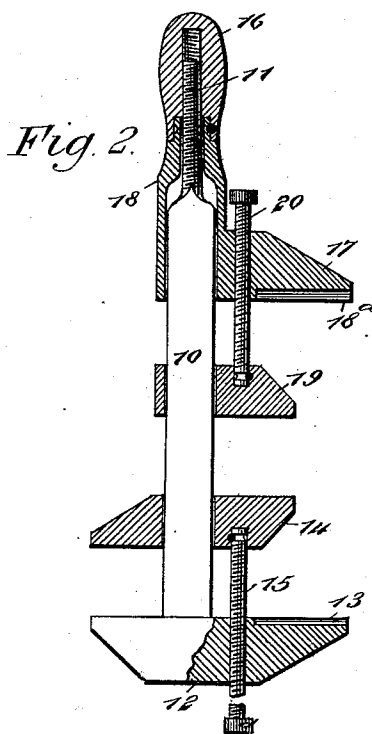
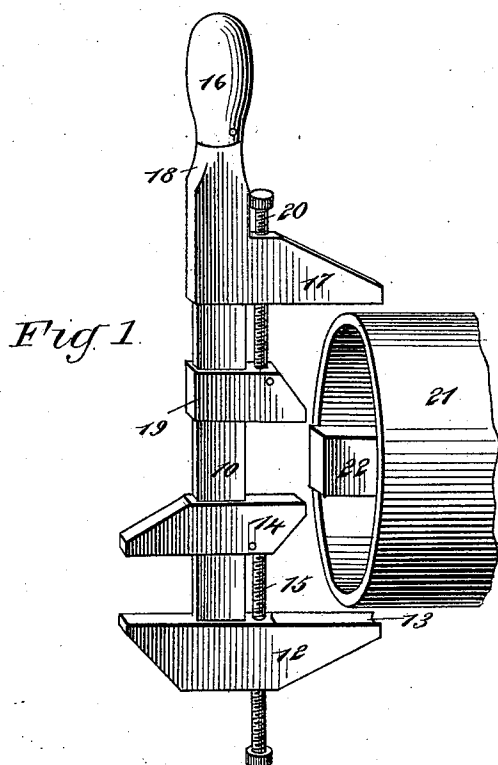


(No Model.)

F. J. BOURN & W. R. HALE.  
WRENCH.

No. 538,639.

Patented Apr. 30, 1895.



WITNESSES:  
*Paul J. J. J.*  
*J. H. J. J.*

INVENTORS  
*F. J. Bourn*  
*W. R. Hale*  
BY  
*Munn & Co.*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

FREDERICK J. BOURN AND WILLIAM R. HALE, OF GUALALA, CALIFORNIA.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 538,639, dated April 30, 1895.

Application filed February 26, 1895. Serial No. 539,752. (No model.)

*To all whom it may concern:*

Be it known that we, FREDERICK JUSTIN BOURN and WILLIAM REUBEN HALE, of Gualala, in the county of Mendocino and State of California, have invented a new and Improved Wrench, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in wrenches, and especially to an improvement in that class of wrenches applicable to vehicle wheels, and it has for its object to provide a wrench which will simultaneously clamp the hub of the wheel and the lock nut of the axle, whereby when the wheel is removed from the axle the lock nut and its washer will be held in their proper relation to the hub and be prevented from falling to the ground or being lost, and whereby also when the wheel is again returned to the axle spindle the nut will immediately engage with the thread of said spindle, thus preventing the soiling of the hands in removing the vehicle wheels, and permitting the oiling or lubricating of axles to be conveniently and expeditiously accomplished.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in both views.

Figure 1 is a perspective view of the improved wrench and a portion of the hub of the vehicle-wheel to which it is applied; and Fig. 2 is a vertical section through the movable members of the wrench, the shank being in side elevation, with the exception of the jaw attached thereto.

In carrying out the invention the shank 10 of the wrench is preferably made rectangular in cross section, and at its handle end is provided with a reduced cylindrical and exteriorly threaded section 11, while at its opposite end a jaw 12 is rigidly secured, the said jaw being made to extend beyond both sides of the shank, but a greater distance on one side than the other, and that portion of the jaw which extends the greater distance beyond the shank is provided with a concaved longi-

tudinal recess 13 in its inner face. Adjacent to the said jaw 12 a nut clamping jaw 14 is held to slide upon the said shank, and this nut clamping jaw likewise extends beyond both sides of the shank, and what may be termed its inner end is connected with the fixed jaw 12 of the shank through the medium of an adjusting screw 15, the screw being held to turn loosely in the nut-clamping jaw 14, and it is passed through an aperture in the fixed jaw 12, the wall of which is threaded correspondingly to the screw. Thus it will be observed that at the outer side of the wrench the extended portions of the jaws 12 and 14 may be used as an ordinary monkey wrench.

A handle 16 is made to fit over the threaded end of the shank 10, the said handle having a longitudinal threaded bore made therein, corresponding to the thread of the shank; and a hub-clamping jaw 17 is held to slide upon the handle end of the shank, being provided preferably with an integral sleeve 18, which has substantially a swivel or loose connection with the handle 16, whereby when the handle is screwed inward or outward upon the threaded end of the shank, the jaw 17 will be correspondingly moved; and in the inner face of this jaw 17 a concaved longitudinal recess 18<sup>a</sup> is formed, corresponding to the recess 13 in the fixed jaw 12. A mating jaw 19 to the nut-clamping jaw 14 is likewise held to slide upon the said shank, the jaws 19 and 14 being of less length than the jaws 12 and 17, and the jaw 19 is connected with the jaw 17 operated from the handle, by means of an adjusting bolt 20, which is loosely mounted in the jaw 19 and has screw connection with the jaw 17. Thus when the handle 16 is manipulated, the hub-clamping jaw 17 and the nut-clamping jaw 19 will move in unison.

In the operation of this wrench, the nut clamping jaw 14 is adjusted by means of the screw 15 with relation to the fixed jaw 12, so that the inner jaw 14 will engage with the nut of an axle when the jaw 12 is brought in engagement with the outer face of the collar 21 of a hub of a vehicle; and the same adjustment is made through the medium of the adjusting screw 20 between the adjustable jaw 17 and the inner connected jaw 19.

In applying the wrench, the aforesaid adjustment having been made, the handle is screwed upward or outward until the handle jaws 17 and 19 are in such position that they will not engage with the collar of the hub or the lock nut 22, when the fixed jaw 12 and the nut-clamping jaw 14 are in such position. This having been accomplished and the jaws 12 and 14 being in engagement with the nut and hub collar, the handle 16 is screwed downward until the jaw 17 shall have clamped the collar of the hub, and the inner jaw 19 shall have engaged with the nut. Thus the nut will be firmly clamped between the intermediate jaws 14 and 19, while the collar of the hub will be firmly held between the outermost jaws 17 and 12. The recesses in these jaws conforming to the contour of the said collar enable them to hold the collar the more firmly. Therefore, when the wheel is removed from the axle spindle, the lock nut will be held in the position with relation to the hub that it previously occupied, and consequently will not be lost or dropped to the ground, and will facilitate the replacement of the wheel when required.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A wrench, the same consisting of a shank, a jaw at the outer end of the shank secured thereto, an adjustable handle carried by the shank, a jaw connected with said handle, and intermediate jaws having an adjustable connection one with the handle jaw and the other with the opposing outer jaw, as and for the purpose set forth.

2. A wrench, the same consisting of a shank, a jaw fixed to one end thereof and extending beyond opposite sides of the shank, a handle adjustable upon the shank, a jaw connected with said handle and carried thereby, and two intermediate jaws, one opposite the fixed jaw

and extending beyond both sides of the shank, and the other being opposite the handle jaw, both intermediate jaws being adjustably connected with the outer jaws adjacent to which they are located, substantially as and for the purpose set forth.

3. In a wrench, the combination, with a shank, having a threaded handle end, and a fixed jaw at its opposite end, a handle adapted to be screwed upon the threaded portion of the shank, a jaw having a loose connection with the said handle and carried thereby, and two intermediate jaws held to slide upon the shank, of less length than the outer jaws, each of the intermediate jaws having an adjustable connection with the outer jaw adjacent to which it is located, substantially as set forth.

4. In a wrench, the combination, with a shank having a threaded handle end, a jaw fixed at its opposite end, extending beyond both sides thereof and provided with a recess in the inner surface of its inner end, and a handle screwed upon the threaded portion of the shank and adapted to have movement parallel with the shank, of a jaw recessed upon its inner face and having a loose connection with the said handle, intermediate jaws, one opposite the handle jaw and the other opposite the fixed jaw, the said intermediate jaws being shorter than the outer ones, and the jaw opposite the fixed jaw extending beyond both sides of the shank, and adjusting screws loosely connected with the intermediate jaws and having threaded connection with the outer jaws adjacent to which the fixed jaws are located, substantially as and for the purpose set forth.

FREDERICK J. BOURN.  
WILLIAM R. HALE.

Witnesses:

GEORGE RAY,  
A. R. TARWATER.