

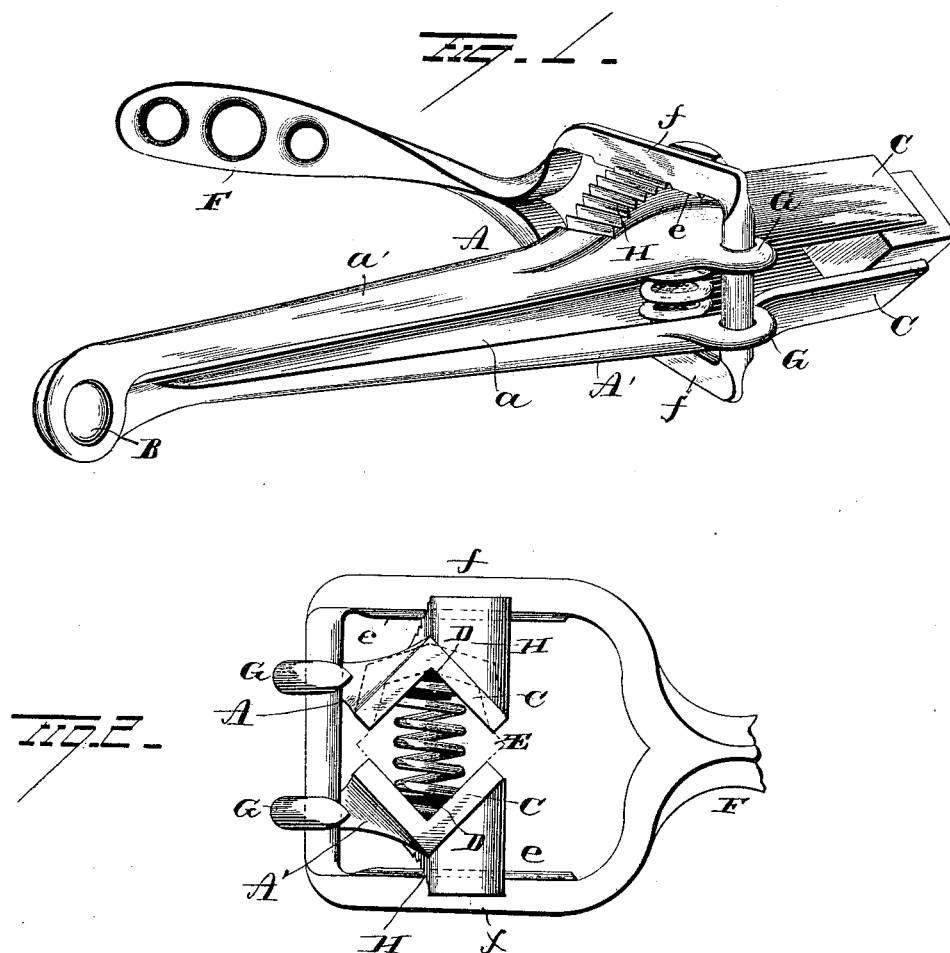
(No Model.)

J. S. HUFFMAN.

WRENCH.

No. 348,522.

Patented Aug. 31, 1886.



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JOHN S. HUFFMAN, OF ROCKFORD, ILLINOIS.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 348,522, dated August 31, 1886.

Application filed February 24, 1886. Serial No. 193,049. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. HUFFMAN, of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in wrenches, and more particularly to wrenches for handling axle-nuts on carriages and wagons.

The object is to provide a wrench which can be quickly and securely adjusted to nuts of various sizes and angular shapes, and which will hold the nut securely within its grasp after it is removed from the axle.

A further object is to provide a wrench which shall consist of few parts, not liable to get out of order, and which may be furnished at a low cost.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the wrench in locked adjustment on a nut, and Fig. 2 is an end view of the device.

The jaws (represented by the letters A A') are of essentially the same size and shape, but their parts are located in symmetrical positions thereon. The jaws are hinged together at their non-gripping ends by a pivotal bolt, B, as shown; or they may be pivotally secured in any other approved manner. They are preferably cast with hollow inner faces, *a*, and rounded backs on the handle portion, as at *a'*, in order to save metal, insure lightness, and afford a smooth rest for the hand. The gripping ends of the jaws are formed angular-shaped, as shown at C, the sides of the jaw being, preferably, set at an angle of ninety degrees to each other to fit the corner of a square nut. A short distance back from the gripping ends the jaws are provided with corresponding inwardly-projecting studs, D, formed integral with or firmly secured to the adjacent faces of the jaws. A spiral spring, E, is located between the jaws, its ends surrounding the studs D, which serve to hold it in position. The tension of the spring tends

to hold the jaws in a normally-open adjustment. A combined locking and operating bar provided with a handle, F, is formed at its opposite end in the shape of a rectangular loop, *f*, which completely surrounds the two jaws near their gripping ends. The end cross-bar of the loop *f* is secured in rocking adjustment in a pair of eyes, G, one on each of the jaws. The jaws are preferably formed of malleable iron or other tough metal, and the eyes G formed by bending a pair of slender projections cast integral with the jaws in curved form around the end bar of the loop *f* into contact with or close proximity to the body of the jaw.

The inner edges, *e*, of the sides of the loop *f* are adapted to engage the corrugated or notched faces of the inclines H on the backs of the jaws. The inclines H gradually diverge from the backs of the jaws as they extend toward the gripping ends of the jaws, and, since the closing of the jaws naturally brings the faces of the inclines H into new positions relatively to the edges *e* of the swinging locking-bar, the faces are formed on a wind, so that the edges *e* will occupy positions nearly or quite parallel to the faces throughout their passage over them. The faces may be either notched, as shown in the drawings, or they may be checked, to prevent the displacement of the edges *e* when in locked adjustment.

The angles of the inclines H and the width of the loop *f* are such that when the handle F is thrown back into the jaws A A' the gripping ends of the jaws will be wide open, and when it is thrown forwardly, at right angles to the jaws, the said ends will be tightly closed. The wrench may be adjusted to any sized nut between these two extremes.

To apply the wrench in practice, the open jaws are placed on opposite sides of the nut to be turned and the handle F thrown forwardly, forcing the gripping ends into snug contact with the nut and locking them in position. When the jaws are thus locked, the handle F serves as an operating-lever in turning the nut off or on. The adjustment is made in a moment of time, and the nut, when turned off, is held securely within the grasp of the jaws, ready to be turned on again when so desired. The handling of a greasy nut and the liability

of dropping it in the mud or sand is thus avoided. The wrench may also be released as quickly as applied by throwing the handle F back on the jaws.

5 It is evident that slight changes might be resorted to in the form and arrangements of the several parts without departing from the spirit and scope of my invention. For example, the sides of the jaw at its gripping end
10 might be set at other angles than ninety degrees, as shown in dotted lines, Fig. 2, and other slight changes might be made; hence I do not wish to limit myself strictly to the construction herein set forth; but,

15 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrench, the combination, with a pair of hinged jaws, of an operating-bar adapted to
20 lock the jaws in closed adjustment, substantially as set forth.

2. In a wrench, the combination, with a pair of hinged jaws, of an operating-bar hinged to the jaws and adapted to lock the jaws in closed
25 adjustment, substantially as set forth.

3. In a wrench, the combination, with a pair of hinged jaws, of an operating-bar provided with a loop adapted to embrace the jaws and lock them in closed adjustment, substantially
30 as set forth.

4. In a wrench, the combination, with a pair of hinged jaws held in a normally-open adjustment by a spring, of a combined locking and operating bar hinged to the jaws, substantially
35 as set forth.

5. In a wrench, the combination, with a pair of spring-actuated jaws, of a combined locking and operating bar adapted to embrace the jaws, substantially as set forth.

6. In a wrench, the combination, with a pair 40 of gripping-jaws provided with inclines, of a bar adapted to engage the inclines and lock the jaws in closed adjustment, substantially as set forth.

7. In a wrench, the combination, with a pair 45 of gripping-jaws provided with inclines on their backs, of an operating-bar adapted to engage the inclines and lock the jaws in closed adjustment, substantially as set forth.

8. In a wrench, the combination, with a pair 50 of jaws provided with notched or corrugated inclines on their backs, of an operating-bar hinged to the jaws and adapted to engage the said inclines and lock the jaws in closed adjustment, substantially as set forth.

9. In a wrench, the combination, with a pair 55 of hinged jaws and an operating-bar adapted to engage the backs of the jaws, of winding-faced inclines located on the backs of the jaws and adapted to afford an extended contact for
60 the operating-bar, for the purpose substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN S. HUFFMAN.

Witnesses:

CHANDLER STARR,
JOHN W. HENDERSON.