

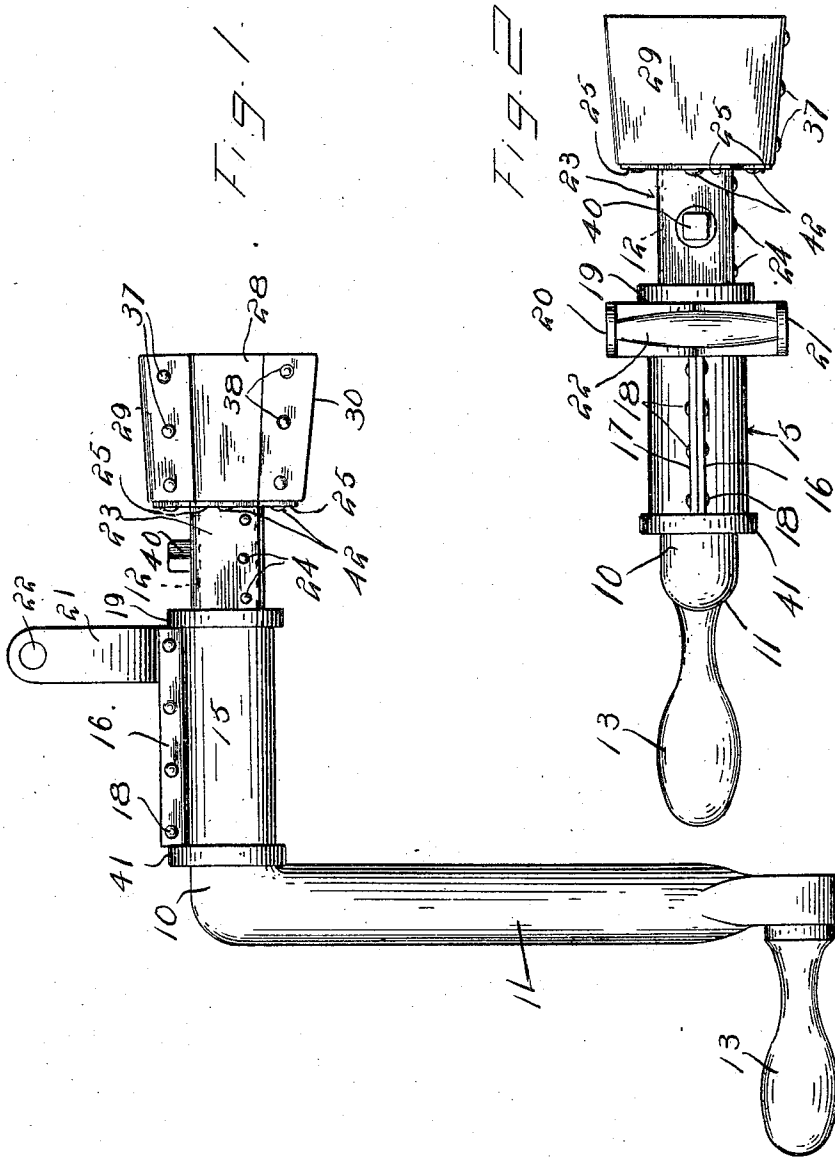
W. E. PAULSON.
WRENCH.

APPLICATION FILED JAN. 30, 1909. RENEWED APR. 8, 1910.

965,929.

Patented Aug. 2, 1910.

2 SHEETS—SHEET 1.



Witnesses
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C. H. Woodward

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2 SHEETS—SHEET 2.

Fig. 3.

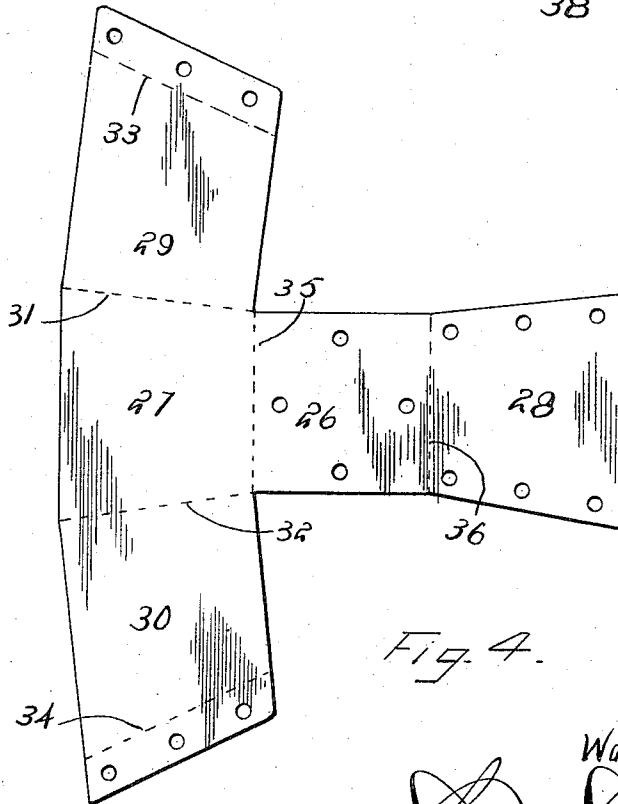
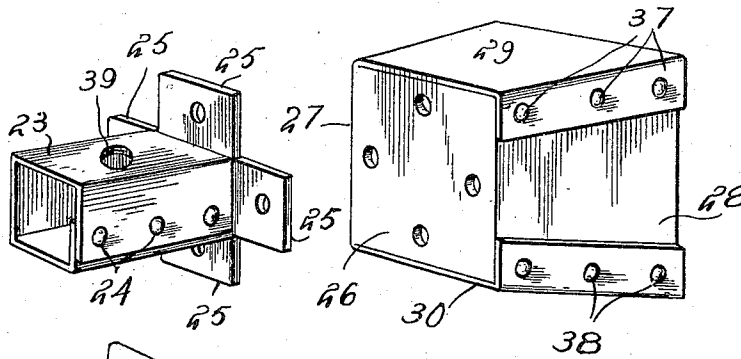


Fig. 4.

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UNITED STATES PATENT OFFICE.

WALTER E. PAULSON, OF HOLLANDALE, WISCONSIN.

WRENCH.

965,929.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed January 30, 1909, Serial No. 475,153. Renewed April 3, 1910. Serial No. 554,271.

To all whom it may concern:

Be it known that I, WALTER E. PAULSON, a citizen of the United States, residing at Hollandale, in the county of Iowa, State of Wisconsin, 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.

This invention relates to wrenches, more particularly to wrenches adapted to be employed in removing the hub holding nuts from vehicles, and has for one of its objects to simplify and improve the construction and increase the efficiency and utility of devices of this character.

With this and other objects in view the invention consists in certain novel features of construction as hereafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention, Figure 1 is a side elevation of the improved device. Fig. 2 is a plan view of the same. Fig. 3 is a perspective view of the nut engaging portion and the shaft engaging portion detached, viewed from the rear. Fig. 4 is a view of the blank from which the nut engaging portion is constructed.

The improved device comprises a shaft 10 having a crank arm 11 at one end and square at the other end as shown at 12, the crank arm having a suitable handle 13 attached to its free end, as shown.

The shaft is mounted for rotation through a bearing 15 formed from a single piece of sheet metal bent into cylindrical form with its edges extended laterally as at 16—17 and connected by rivets 18, the members 16—17 being shorter than the bearing whereby cylindrical ends are produced to receive holding rings or collars 41—19.

Extending from the members 16—17 at one end are curved arms 20—21 between whose outer ends a grip member 22 is secured. By this means an effectual support is provided for the shaft 10 which may be held by the operator grasping the grip portion 22, while the shaft is rotated by operating the crank arm, as hereafter explained.

Fitting over the square portion 12 of the shaft is a correspondingly formed sleeve 23, the latter constructed from a single sheet of

metal bent into the required shape with its terminals connected by rivets 24, the sleeve 23 being formed with laterally extending wings 25 at one end, as shown in Fig. 3.

The nut engaging portion of the improved device is formed from a single sheet of metal cut into the shape shown in Fig. 4, and comprises a rear portion 26, integral sides 27—28 and wing portions 29—30. The nut engaging portion is preferably formed flaring outwardly to a limited extent to adapt it to nuts of varying sizes, and also to render the connection of the device with the nut easier. To produce this form of the nut engaging portion, the sides 27—28 are formed flaring, the wings 29—30 folded at angles to the side 27 along the lines 31—32, while the outer ends of the wings 29—30 are folded along the lines 33—34.

With a blank thus constructed the nut engaging portion is produced by bending the sides 27—28 at angles to the rear portion 26 along the lines 35—36, then bending the wings 29—30 at angles to the side 27 along the lines 31—32 and then bending the outer portions of the wings 29—30 at angles therealong to the lines 33—34, and uniting the outer ends of the wings to the side 28 by rivets 37—38. The wings 25 of the sleeve 23 are connected to the rear portion 26 of the nut engaging portion by rivets 42, as shown.

The square portion 12 of the shaft 10 is rigidly coupled to the sleeve 23 by a cap screw 40.

By this means it will be obvious that a simply constructed device is produced, which is very strong and durable, and by means of which a nut may be readily removed from or attached to a vehicle axle, without the necessity of the operator touching the nut with the fingers.

The sleeves 15—23 and the nut engaging portion will preferably be formed from sheet steel cut in the required shape and bent into the required form.

The shaft 10 with its square portion 12 and crank arm 11 are preferably forged from one single piece of steel.

What is claimed, is:—

1. An implement of the class described comprising a shaft having a crank handle at one end, a bearing element formed from a single sheet of metal bent around the shaft and with its edge portions directed outwardly and butted face to face, the termi-

nals of said outwardly directed portions being spaced from the ends of the bearing element, fastening devices operating through said outwardly directed portions, integral arms extending from said bearing element, a hand grip device connected between said arms, a holding collar encircling said bearing element between the outwardly directed portions thereof and the crank, a holding collar encircling the bearing element in advance of the outwardly directed portions thereof at the opposite end, and a nut engaging device connected to the shaft.

2. An implement of the class described comprising a shaft having a crank at one end, a bearing element formed from a single sheet bent to engage around the shaft and united at the longitudinal edges and provided with integral arms, rings bearing around the bearing element at the ends

thereof, a hand grip element connected between said arms, a sleeve formed from a single sheet bent to engage the shaft in advance of the bearing and provided with lateral ears at one end, means for detachably coupling the sleeve to the shaft, a wrench engaging device formed from a single sheet and comprising a back portion and side portions and with wings extending from one side portion and connected to the other side portion when the parts are bent into shape, and means for connecting the ears to said back portion.

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

WALTER E. PAULSON.

Witnesses:

HENRY BRUGGER,
GEO. PAULSON.