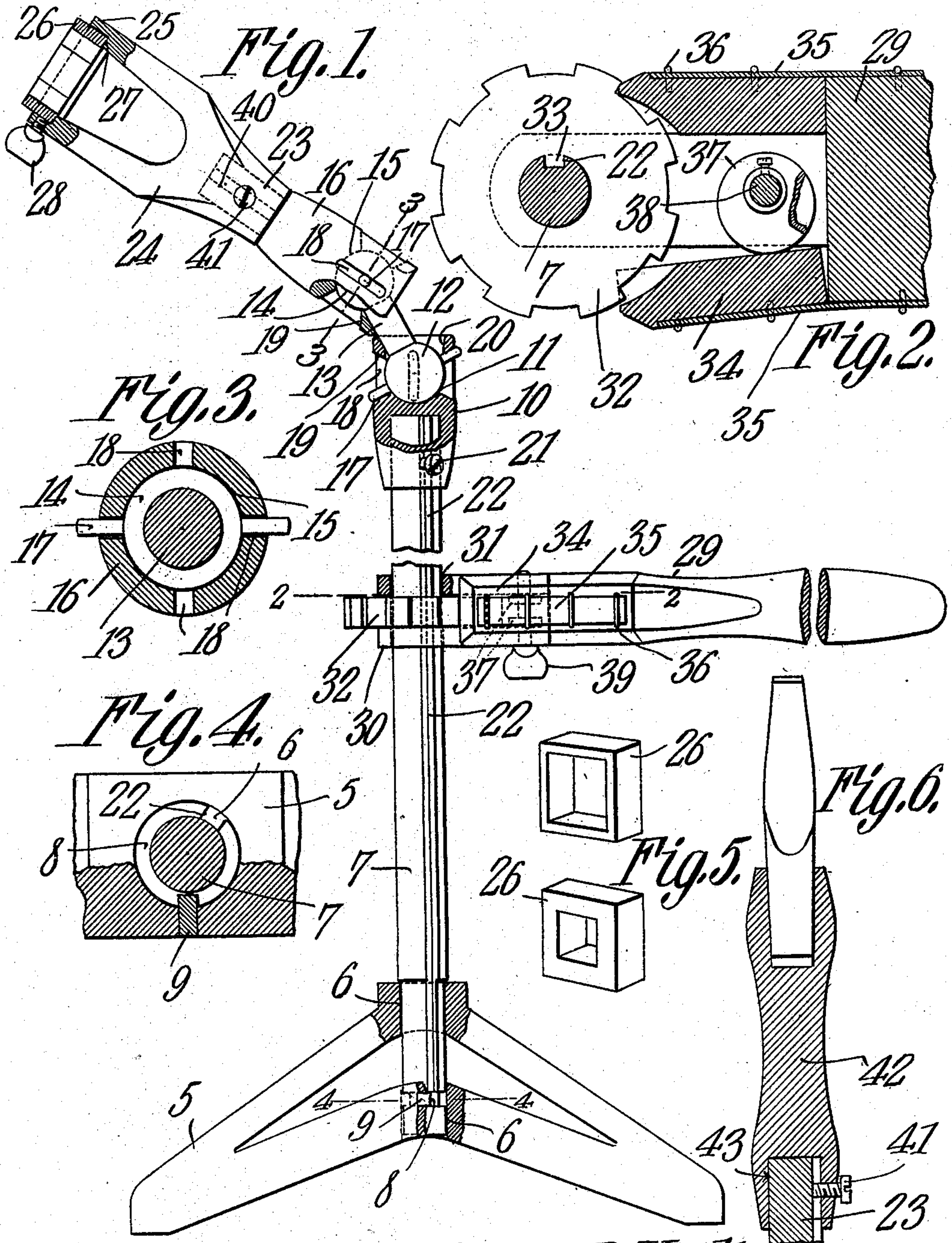


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WRENCH AND TOOL HOLDER.
APPLICATION FILED JULY 27, 1907.

905,070.

Patented Nov. 24, 1908.



WITNESSES:

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WRENCH AND TOOL-HOLDER.

No. 905,070.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed July 27, 1907. Serial No. 385,826.

To all whom it may concern:

Be it known that I, JEROME D. HECK, a citizen of the United States, residing at Tenmile, in the county of Upshur and State of West Virginia, have invented a new and useful Wrench and Tool-Holder, of which the following is a specification.

This invention relates to ratchet wrenches and has for its object to provide a comparatively simple and inexpensive device of this character by means of which nuts may be positioned within or removed from the interior of threshing machine cylinders and which may also be used in adjusting nuts in places where an ordinary wrench would be inadequate.

A further object of the invention is to provide a ratchet wrench the head of which is formed with a socket for the reception of a plurality of interchangeable socket pieces whereby the wrench may be used for manipulating nuts of different sizes.

A further object is to provide a wrench including a rest or support having a shaft mounted for rotation therein and provided with an operating handle, there being a universal connection between the shaft and head of the wrench thereby to permit the latter to be adjusted at any angle or inclination with respect to the shaft.

A still further object of the invention is to generally improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a side elevation partly in side section of a ratchet wrench constructed in accordance with my invention. Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1. Fig. 3 is a similar view taken on the line 3—3 of Fig. 1. Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 1. Fig. 5 is a perspective view of a pair of removable socket pieces detached. Fig. 6 is a longitudinal sectional view of a tool designed for use in connection with the wrench.

Similar numerals of reference indicate

corresponding parts in all of the figures of the drawings.

The improved wrench forming the subject matter of the present invention consists of a rest or support 5 having aligned openings 6 formed therein for the reception of an operating shaft 7.

The shaft 7 is mounted for rotation in the rest or support 5 and is provided at its lower end with a circumferential groove 8 in which is seated a screw or similar fastening device 9 whereby the shaft is free to rotate on the rest or support but is locked against independent longitudinal movement.

Secured to the upper end of the shaft 7 is a stationary sleeve or member 10 having a socket or chamber 11 formed in the upper end thereof for the reception of the spherical head 12 of a connecting link 13, said link being provided with a similar head 14 which engages a correspondingly shaped socket 15 formed in a mating sleeve or member 16 thereby to form a universal connection between the members 10 and 16.

Extending laterally from the spherical heads 12 and 14 of the connecting link 13 are one or more pins or lugs 17 which project through vertically disposed slots or openings 18 formed in the adjacent members thereby to prevent accidental displacement of the link.

The upper and lower walls of the slots or openings 18 are inclined or beveled at 19 so as to permit free tilting movement of the link 13, the side walls of the sockets at the open ends thereof being also preferably inclined or beveled, as indicated at 20.

The member 10 is rigidly secured to the operating shaft 7 by a screw or similar fastening device 21 which extends through said member and engages a longitudinally exposed groove or spline 22 formed in the operating shaft, as shown.

The member 16 is provided with a reduced extension 23 which engages a correspondingly shaped socket formed in the wrench head 24, the latter being provided with a terminal chamber or socket 25 for the reception of a plurality of interchangeable socket pieces 26.

The openings in the socket pieces 26 are made in different sizes so as to permit the wrench to be used on correspondingly shaped nuts. The socket pieces 26 bear against an

angular stop shoulder 27 formed in the wrench head 24 and are retained in position in the socket 26 by means of one or more clamping screws 28. It will thus be seen that by reason of the universal connection between the members 10 and 16 the wrench head 24 may be adjusted laterally at any desired angle or inclination to the operating shaft so as to permit the wrench to be used for removing nuts which would be inaccessible with an ordinary wrench.

As a means for rotating the shaft 7 there is provided a laterally extending operating lever 29 having its upper and lower walls 30 spaced apart to form an intermediate chamber and provided with alined openings 31 for the reception of the shaft.

Mounted for vertical movement on the shaft 7 between the perforated ends of the arms 30 is a ratchet wheel 32 provided with a key 33 which engages the spline or groove 22 in the operating shaft so that when the ratchet wheel is rotated it will cause a corresponding rotation of the operating shaft. It will thus be seen that the operating lever 29 is keyed to the shaft 7 but is free to move vertically of the shaft so that said lever may be adjusted to any desired position on the latter.

Secured to the opposite side walls of the handle 29 are spring pawls 34 adapted to engage and rotate the ratchet wheel when the lever 29 is reciprocated.

The pawls 34 are combined with the handle 29 by means of flat springs 35 seated in correspondingly shaped recesses in the handle and pawls, respectively and held in engagement with the walls of said recesses by staples or similar fastening devices 36.

As a means for alternately throwing the pawls 34 out of engagement with the teeth on the ratchet wheel 32 there is provided a cam or eccentric 37. The cam or eccentric 37 is positioned between the upper and lower plates 30 of the lever 29 and is secured to and mounted for rotation with a stub shaft 38 preferably journaled in the walls 30 and provided with a terminal finger piece 39 by means of which the cam may be rotated or oscillated to effect the disengagement of either pawl from the ratchet wheel.

The reduced extension of the member 23 is preferably formed with a longitudinal groove or seat 40 in which is seated a clamping screw 41 so as to prevent rotation of the head 24 on the member 16.

In Fig. 6 of the drawings there is illustrated a screw driver adapted to be used in connection with the wrench, the handle 42 of the screw driver being provided with a terminal socket 43 for the reception of the reduced extension 23 of the member 16 so that by introducing the member 23 in the socket 43 and adjusting the clamping screw

41, said screw-driver may be rigidly secured to the member 16.

From the foregoing description it is thought that the construction and operation of the device will be readily understood by those skilled in the art and further description thereof is deemed unnecessary.

Having thus described the invention what is claimed is:

1. A ratchet wrench including a support, a shaft journaled in the support, a wrench head, a universal connection between the wrench head and the adjacent end of the shaft, a lever adjustable longitudinally of the shaft and having spaced arms provided with alined perforations for the reception of the shaft, a ratchet wheel secured to the shaft between the arms, pawls carried by the operating lever, springs connecting the pawls with the operating lever, and a cam mounted for rotation between the pawls for moving the latter alternately to inoperative position.

2. A ratchet wrench including a support, a shaft journaled in the support and provided with a longitudinal key seat, a wrench head, a universal connection between the wrench head and adjacent end of the shaft, an operating lever adjustable vertically of the shaft and provided with spaced arms having alined perforations formed therein for the reception of the shaft, a ratchet wheel secured to the shaft between said arms and provided with a key engaging the seat in the shaft, oppositely disposed pawls secured to the lever, springs connecting the pawls with the lever, a stub shaft journaled in the arms of the lever and provided with a finger piece, and a cam carried by the stub shaft and adapted to alternately engage the pawls for moving the latter to inoperative position.

3. A ratchet wrench including a support, a shaft journaled in the support, a stationary member secured to one end of the shaft and provided with a socket, a movable member having a similar socket, a link connecting said members and provided with substantially spherical heads for engagement with the sockets, one of said members being provided with a reduced shank, a wrench head engaging the shank, and an operating lever extending laterally from the shaft for rotating said shaft.

4. A ratchet wrench including a support, a shaft mounted for rotation in the support, a relatively stationary member secured to the free end of the shaft and having a socket formed therein the walls of which are provided with slots, a relatively movable member provided with a corresponding socket and having similar slots formed therein and communicating with the socket, a link provided with substantially spherical heads engaging the walls of the socket, pins extend-

ing laterally from the spherical heads of the
link and projecting through the adjacent
slots, one of said members being provided
with a reduced shank, a wrench head secured
5 to the shank, and an operating lever secured
to and adjustable longitudinally of the shaft
for rotating the latter.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

JEROME D. HECK.

Witnesses:

ASA GARFIELD MOON,
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