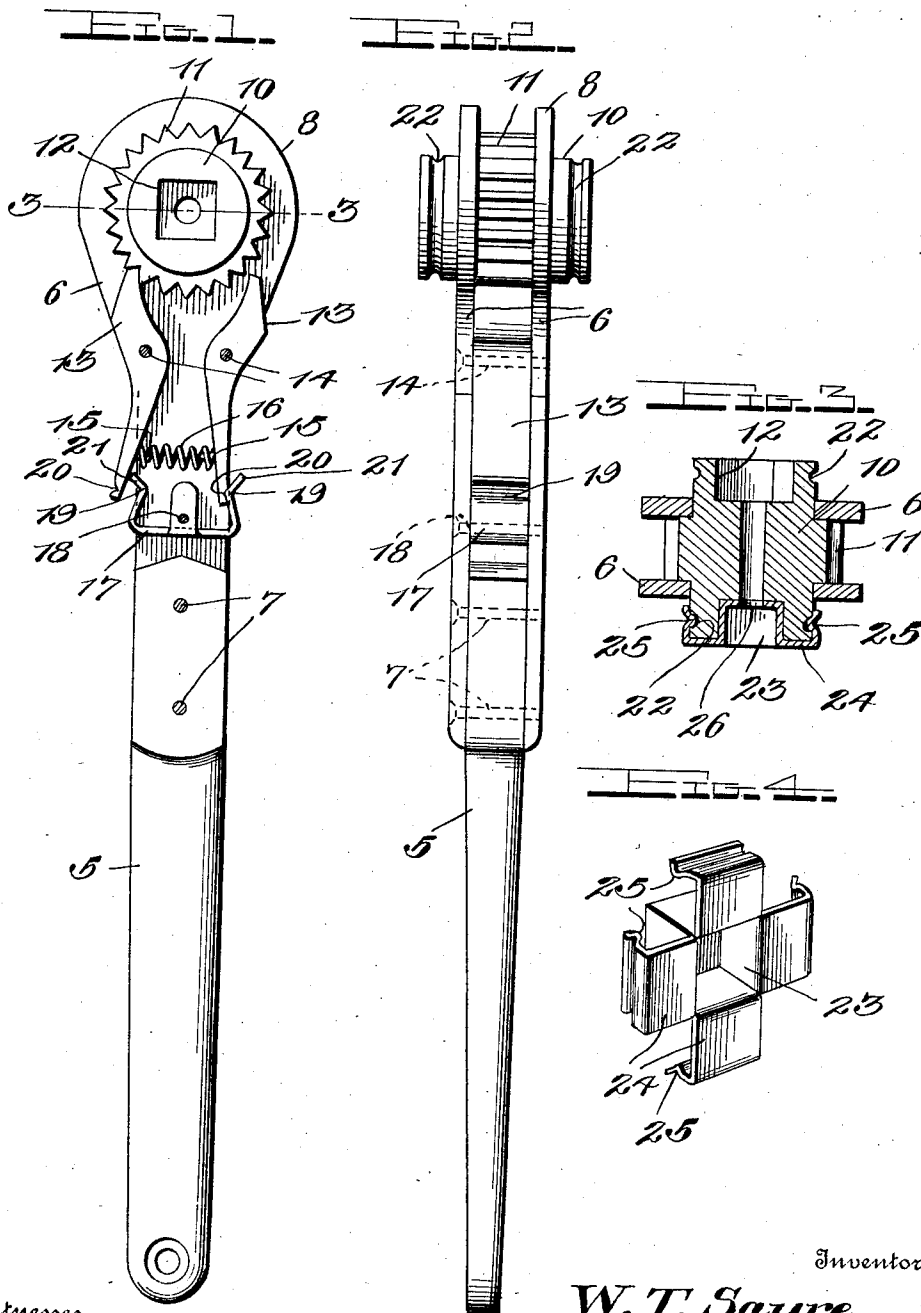


W. T. SAYRE.
 RATCHET WRENCH.
 APPLICATION FILED AUG. 21, 1912.

1,058,795.

Patented Apr. 15, 1913.



Witnesses

Chas. L. Grischauer.
A. J. Hind.

Inventor

W. T. Sayre,

By

Watson E. Coleman.
 Attorney

UNITED STATES PATENT OFFICE.

WILLIAM T. SAYRE, OF PARKERSBURG, WEST VIRGINIA.

RATCHET-WRENCH.

1,058,795.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM T. SAYRE, a citizen of the United States, residing at Parkersburg, in the county of Wood and State of West Virginia, have invented certain new and useful Improvements in Ratchet-Wrenches, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to ratchet wrenches and has for its object to provide a simple and efficient device of this character consisting of comparatively few elements which may be inexpensively produced and readily assembled.

15 Another object of the invention resides in the provision of a removable member adapted to be associated with the nut receiving head whereby the wrench may be applied to nuts of various sizes.

20 With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain constructions, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

25 For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which—

30 Figure 1 is a side elevation of a wrench embodying the present invention, one of the face plates being removed; Fig. 2 is an edge view thereof; Fig. 3 is a section taken on the line 3—3 of Fig. 1, but showing the detachable nut receiving member applied to the operating head; and Fig. 4 is a detail perspective view of said nut receiving member.

35 Referring in detail to the drawing 5 designates a suitable handle which is enlarged or thickened at one end. To this enlarged end of the handle the spaced face plates 6 are secured by means of rivets, screws or analogous fastening elements indicated at 7. These face plates extend beyond the end of the handle 5 and the outer ends thereof are circularly formed as indicated at 8 and provided with openings 9 to receive the ends of an operating head 10. The intermediate portion of this head is provided with a ratchet 11 which is located between the opposed faces of the spaced face plates. The projecting end portions of the head 10 are each provided with a nut receiving socket 12, the socket in one end of the head being

of rectangular form while the socket in the other end of the head is of octagonal or other polygonal form so that the wrench may be applied to nuts of different shapes.

Between the face plates 6 inwardly of the enlarged ends 8 thereof, a pair of pawls 13 are arranged. These pawls are pivotally mounted upon the pins 14, the ends of which are fixed in the spaced plates 6. The outer ends of these pawls engage the teeth of the ratchet 11 upon opposite sides thereof and the inner ends of the pawls are provided with inwardly projecting studs 15 upon which the ends of a coil spring 16 are engaged. A holding member 17 is mounted to oscillate upon a pin 18 connecting the plates 6. This member is in the form of a metal plate, the ends of which are flanged or bent as indicated at 19 for engagement in the grooves 20 provided in the outer face of the pawls 13 at their inner ends. The extremities of this plate are laterally extended to provide suitable finger pieces 21 whereby said plate may be oscillated.

From the above construction it will be obvious that either of the pawls 13 may be held out of engagement with the teeth of the ratchet by engaging one end of the plate 17 therewith while the outer end of the other pawl is held in engagement with the ratchet teeth by the spring 16. Thus the operating head will be held against turning movement in one direction while it is free to rotate in the opposite direction in order to remove or apply the nut.

Each of the projecting ends of the operating head 10 is provided with an annular peripheral groove 22. A detachable nut receiving member generally indicated by the numeral 23 consists of a hollow body portion of the requisite form to be fitted into the socket 12 in either end of the operating head, and from the edge of this body portion a plurality of resilient tongues 24 extend. These tongues are reversely bent as clearly shown in Fig. 4 for engagement over the end edge of the operating head. The extremities of the tongues are provided with ribs indicated at 25 for engagement in the annular groove 22 formed upon the end of the operating head. Thus the detachable nut receiving members 23 will be securely held in place during the operation of the wrench. The body wall of the member 23 is preferably provided with an opening 26

to receive the projecting end of a bolt. The operating head 10 is also preferably centrally bored for a similar purpose. It will be understood that several of the members 23 may be provided for application to each end of the head, said members having body portions of relatively different sizes, thus rendering the wrench applicable to various size nuts.

From the foregoing it is thought that the construction and manner of operation of my improved ratchet wrench will be clearly understood. The positions of the pawls 13 may be easily and quickly reversed so as to permit the operating head 10 to be turned in either direction.

The device as a whole consists of comparatively few elements which are strong and durable in construction and may be readily assembled in their proper relative positions.

The detachable nut receiving members 23 may be stamped out of a single sheet of metal and bent in proper form by means of a suitable die. It will thus be apparent that the provision of said members will not add materially to the cost of manufacture of the tool.

While I have shown and described the preferred form and arrangement of the several elements, it will be understood that the invention is susceptible of considerable modification without departing from the essential features or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed is:

A ratchet wrench comprising in combination a handle, spaced plates fixed to the handle, a rotatable operating head mounted in said plates and provided with a ratchet, pivoted pawls mounted between said plates to engage the ratchet upon opposite sides thereof, said pawls being provided at one of their ends with grooves arranged upon the outer faces thereof, inwardly projecting studs formed upon the inner ends of said pawls and arranged upon the inner faces thereof, a spring arranged between said pawls and having its ends mounted upon said studs, said spring normally acting to hold said pawls in engagement with the teeth of the ratchet, an oscillatory holding member mounted between said plates, one arm of said holding member adapted to bear against the inner face of one of said pawls to maintain it in engagement with the ratchet and the other of the arms of the holding member being engaged with the groove upon the outer face of the other pawl thereby holding it out of engagement with the ratchet against the action of the spring.

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

WILLIAM T. SAYRE.

Witnesses:

WALTER NORRIS,
CHAS. F. RAUSH.