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RATCHET WRENCH.

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949,522. Patented Feb. 15, 1910.

Fig. 1.

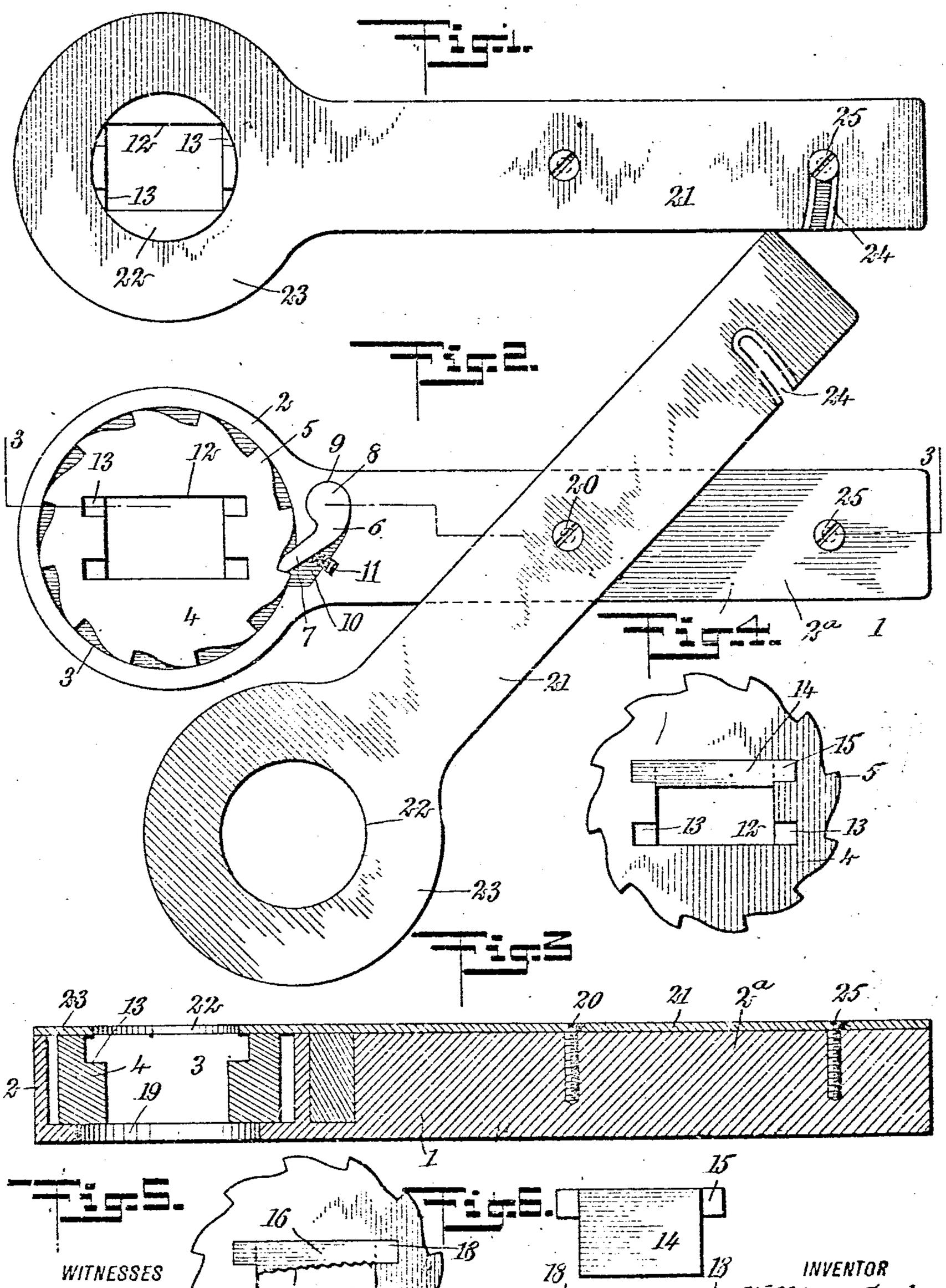

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

WITNESSES

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RATCHET-WRENCH.

949,522. Specification of Letters Patent. Patented Feb. 15, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM COOK, a citizen of the United States, and a resident of Phillipsburg, in the county of Warren and State of New Jersey, have invented a new and Improved Ratchet-Wrench, of which the following is a full, clear, and exact description.

This invention relates to ratchet wrenches, and the object of the invention is to produce a wrench having a ratchet wheel presenting a socket which may be applied to the head of a nut or bolt for rotating the same. This ratchet wheel is mounted in a suitable ratchet head and is adapted to be advanced by means of a lever operating through a pawl. The socket in the ratchet wheel is constructed in such a way as to enable it to retain inset jaws which reduce the size of the socket or enable it to be used as a pipe wrench.

The invention concerns itself also with the means for retaining the parts in the ratchet head.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

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

Figure 1 is a plan of a wrench constructed according to my invention and showing the same with the cover closed; Fig. 2 is a view similar to Fig. 1, but showing the wrench with the cover open so as to expose the parts within the ratchet head; Fig. 3 is a longitudinal section taken through the wrench on the line 3—3 of Fig. 2; Fig. 4 is a plan of the ratchet wheel and showing one of the removable inset jaws in position; Fig. 5 is also a plan of the ratchet wheel and showing a special pipe wrench, the jaw seating in the socket so as to adapt the wrench for unscrewing pipes or studs; Fig. 6 is a side elevation of the plain inset jaw which is shown in Fig. 4; and Fig. 7 is a front elevation of the pipe or stud jaw shown in Fig. 5.

Referring more particularly to the parts, 1 represents the body of a wrench which has an elongated handle or lever 2ª terminating at one end in an enlargement or ratchet head 2. This ratchet head 2 has a circular chamber 3 which receives a ratchet wheel 4, having peripheral teeth 5, and these teeth are adapted to engage with a pawl 6 which is mounted in the handle near its point of attachment with the head. The pawl 6 has an elongated tail 7, and an enlarged substantially circular head 8. This circular head is received in a substantially circular pocket 9 which has a substantially straight neck 10 which extends therefrom and cuts through the side wall of the chamber 3, as shown. The tail 7 of the pawl lies in this neck and engages with the teeth of the ratchet wheel, as indicated, being pressed into engagement therewith by a coil spring 11 which is seated in a recess in the wall of the neck, and presses against the rear side of the tail, as shown. It should be understood that the pawl 6 has no pivot pin, strictly speaking, but simply rocks on its own head 8, which head substantially fills the circular pocket 9 so that the pocket 9 forms a bearing, as it were, for the pawl.

In the center of the ratchet wheel 4, a substantially rectangular socket 12 is formed, and at the corners of this socket notches or recesses 13 are formed, as indicated. These notches or recesses are disposed in pairs and opposite to each other. They are for the purpose of holding inset or auxiliary jaws such as the jaw 14 shown in Fig. 4. This jaw is in the form of a plain block, near the upper edges of which extend lugs or bits 15 which may project into the recesses 13 so as to hold the jaw in place, as shown. This jaw is constructed so that its outer face is substantially parallel with the long side of the socket 12 so that it operates to reduce the width of the socket, enabling it to be applied to a nut or bolt head of smaller size.

Instead of providing the plain jaw 14, I may provide a special jaw 16 which tapers in thickness so as to present an inclined corrugated face 17 disposed toward the interior of the socket. This jaw is provided with lugs or bits 18 which project into the recesses and hold the jaw in position, as will be readily understood. The manner of securing this jaw is shown in Fig. 5. When the jaw is set in position, the socket of the ratchet wheel is adapted to engage with a pipe or stud, or similar round object, so as to enable the pipe or stud to be screwed up. As indicated in Fig. 3, the bottom wall of

the chamber 3 is provided with an enlarged opening 19, through which the head of the nut or bolt may be introduced in passing into the socket.

On the side of the handle 2ª, on the middle point thereof, a pivot screw 20 is provided, by means of which a cover plate or cover 21 is attached to the body of the wrench. This plate has the same general outline as the wrench so that it fits neatly upon it when the cover is closed, as indicated in Fig. 1. The enlarged extremity of the cover which is disposed over the ratchet head 2, is provided with an enlarged opening 22, through which the socket 12 may be seen: however, this opening is sufficiently small to enable the annular rim or ring 23 of the cover to project over the ratchet wheel and over the recesses 13, so that the cover will operate to retain the removable jaws of the ratchet wheel as well as the ratchet wheel itself. It will also be evident that the cover retains the pawl 6, so that when the cover is closed the parts are all held in their proper position. The tail of the cover is provided with a curved slot 24, and this slot is adapted to receive a stop screw 25 which is mounted in the handle or lever near the outer end thereof. This screw limits the movement of the cover and brings it into central alinement with the body of the wrench.

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

1. A ratchet wrench having a body and a ratchet head presenting a circular chamber therein, a ratchet wheel rotatably mounted in said chamber and having an angular socket, an inset jaw adapted to be received in said angular socket to reduce the width thereof, and a movable cover attached to said body and having an opening at said socket the edge whereof retains said ratchet wheel and said inset jaw.

2. A ratchet wrench having a body and a ratchet head with a ratchet chamber formed therein, a ratchet wheel mounted in said ratchet chamber, said body having a pocket formed therein communicating with said ratchet chamber, a pawl having a substantially round head held in said pocket and rolling on the wall thereof, said pawl co-operating with said ratchet wheel, an inset jaw adapted to be received in said socket, having its upper face flush with the upper face of said head, and a removable cover plate resting on the face of said head retaining said pawl and said inset jaw.

3. A ratchet wrench having a body and a ratchet head presenting a chamber therein, said body having a pocket communicating with said chamber, a ratchet wheel mounted in said chamber having an angular socket therein, said socket having recesses in the edges thereof, an inset jaw having projections adapted to be received in said recesses and reducing the width of said socket, a pawl having a round head received in said pocket, said head being adapted to roll on the wall of said pocket when the tail of said pawl is displaced, said pawl coöperating with said ratchet wheel, and a cover pivotally mounted on said body and conforming to the outline of said body and said ratchet head, said cover projecting over said head and affording means for retaining said ratchet wheel, said pawl and said inset jaw.

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

WILLIAM COOK.

Witnesses:
GEORGE T. SMITH,
CALEB H. BILBY.