

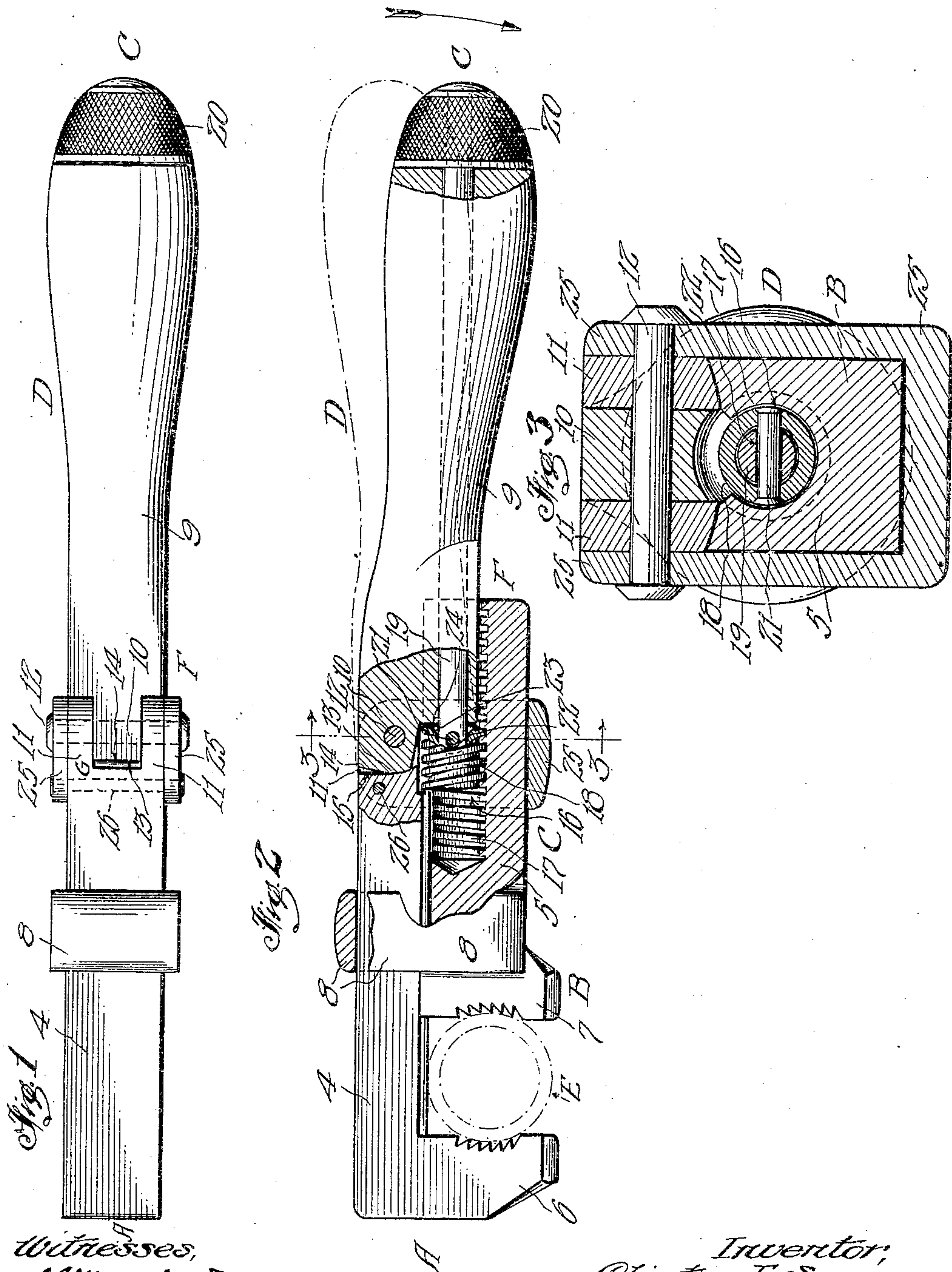
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WRENCH.

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929,797.

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UNITED STATES PATENT OFFICE.

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WRENCH.

No. 929,797.

Specification of Letters Patent.

Patented Aug. 3, 1909.

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To all whom it may concern:

Be it known that I, CLINTON E. SOMERS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches, and it has for its object to provide an improved device or implement of this character which will be superior in point of inexpensiveness and durability of construction, positiveness of operation, simplicity and convenience in use and manipulation, and general serviceability and efficiency.

The invention relates to that class of wrenches in which are provided a plurality of relatively movable jaws or heads, combined with a handle member or operating arm and adjusting means for relatively moving the jaws or heads.

According to the invention, I provide leverage means which coöperates with the adjusting means for causing a particularly efficient grip of the jaws or heads upon or with relation to the work, such as a nut, bolt, pipe or other device. I am aware that such leverage means has been heretofore devised; but my improvement is, in this respect, at variance with the prior art, in that such leverage means is embodied in or closely associated with the handle member or operating arm of the wrench, whereby the application of force to the work through the wrench is accompanied by the imposition of the effect of the leverage means upon the work. I furthermore combine the adjusting means with the handle member or operating arm, or a portion thereof, so that said adjusting means may be actuated through the agency of the foregoing member or arm.

A wrench organized in general as above set forth, and having further specific details of construction and combination of parts and features, all as hereinafter set forth, shown in the drawing, and pointed out in claims, meets the requirements initially herein referred to, and constitutes the invention.

In the drawing: Figure 1 is a longitudinal rear face view of a wrench embodying the invention; Fig. 2 is a longitudinal side face view of the same, partly broken away and partly in section for fullness of illustration; and, Fig. 3 is a detail transverse

sectional view of the same, upon an enlarged scale, taken upon the line 3—3, Fig. 2, and looking in the direction of the appended arrows.

Corresponding parts in all the figures are denoted by the same reference characters.

Referring with particularity to the drawing, A and B designate, respectively, wrench jaws or heads which are relatively movable, and C designates adjusting means for relatively moving the same.

D designates an operating arm or handle member for applying the wrench jaws A and B to the work in use of the wrench; E designating the work which is shown in dotted lines in Fig. 2 as consisting of a pipe.

F designates leverage means which is embodied in or combined with the operating arm or handle member D and which coöperates with the adjusting means C for effecting the grip of the wrench jaws upon the work.

A particular form of construction, provision, combination, association and relative arrangement of parts, members and features of a wrench embodying the invention, is as follows:—

The wrench jaw A is formed upon a bar 4, and the wrench jaw B is formed upon a bar 5, which bars extend in parallel relation, so that the jaws 6 and 7, which are the jaws proper of the parts A and B, are arranged in opposed parallel relation, and may be caused to relatively approach or separate by relatively moving the bars 4 and 5 through the agency of the adjusting means C. The forward or outer end portion of the bar 5, adjacent to the jaw 7, is provided with a collar or keeper 8 which embraces the bar 4, so that said bars may have free relative play. The handle member D comprises a grip 9, and a head 10 at the forward end thereof; which said head fits between cheeks 11 which are formed upon the rearward end portion of the bar 4. The handle member D is pivotally connected with the bar 4 by means of a pin 12 which passes through the head 10 and the cheeks 11; whereby the handle member D may be pivotally swung in a longitudinal plane of the wrench passing transversely through the bars 4 and 5 of the wrench jaws A and B. A coöperating curvature of the head 10 and the rearward end portion of the bar 4, as at 13, is provided; and said curved portions terminate in flat

portions 14 and 15; whereby the said parts may bear one upon the other in limited play, said flat portions constituting stop means G. The play of the handle member D in the opposite direction is limited by its engagement with the bar 5 when said handle member lies within the general longitudinal plane of the wrench. The play allowed the handle member D permits of its pivotal deflection from said plane, outward of the plane of the rear face of the wrench, in slight angularity. The bar 5 is longitudinally channeled from a point adjacent to the jaw 7 to its rearward end portion, as at 16, and the forward end portion of the handle member D, or of the grip 9 thereof, lies within said channel.

The adjusting means C comprise a segmental threaded portion 17 formed upon the bar 5 within the channel 16 and throughout the extent thereof; and a similarly threaded cylindrical head 18 coacting with said threaded portion 17 and traversing the channel 16 in the relative movement of the bars 4 and 5; with which is combined an operating shaft 19 extending longitudinally through the handle member D, or the major portion thereof, in rotative mounting, said shaft being pivotally connected at its forward end with the threaded head 18, and being fixed in or to a handle portion or head 20 at its rearward end. Said handle portion or head preferably conforms to and completes the structure of the entire handle member. The pivotal connection of the shaft 19 with the threaded head 18 may consist of a pin 21 passing through a transverse slot 22 formed in the shaft 19, and slightly elongated longitudinally of the shaft 19. The rearward end portion of the threaded head 18 is provided with a chamber 23 within which the forward end portion of the shaft 19 has free play in the pivotal movement of said shaft with the handle member D. The head 10 of the handle member D projects forwardly of the major portion of the handle member; and the remaining forward end portion of the handle member is formed as a shoulder 24 which may bear against the threaded head 18 of the adjusting means C, at the rearward end of the same, such shoulder together with the remaining portions of the handle member D constituting the leverage means F, and acting upon the work through the adjusting means C, when operative pressure is brought to bear upon the handle member.

To supplement the function of the collar or keeper 8 in maintaining working alinement of the bars 4 and 5, and particularly to counteract the leverage of the handle member D upon the bar 5 in its tendency to throw the bars 4 and 5 out of alinement, I provide a keeper or yoke 25 which embraces the bar 5, the rearward end portion of the bar 4 including the cheeks 11, and forward end portion of the handle member D; said keeper

being held in place by the pin 12 and by a pin 26 which passes through the same and through the rearward end portion of the bar 4. The keeper 25 is thus connected with the handle member D and with the bar 4; whereas the keeper 8 is connected with the bar 5.

The operation, method of use and advantages of the improvements constituting the invention will readily be understood from the foregoing description taken in connection with the accompanied drawings and the following statement:—To fit the jaws 6 and 7 to the work, or to obtain a substantial fit, the handle portion or head 20 is rotated until the said jaws fully grip the work; or, with the handle member D swung rearwardly, a light contact, more or less, of the jaws upon the work is effected. The handle member is then gripped firmly and swung in the direction denoted by the arrow adjacent to the rearward end of the handle member in Fig. 2. This causes the wrench to actuate the work E, and simultaneously brings the leverage means F into play, the head or shoulder 24 being brought to bear firmly against the threaded head 18 of the adjusting means C and urging the bar 5 and head 7 thereof toward the work, in relative movement of the jaws 6 and 7, giving a final pinch upon the work. To actuate the work in the opposite direction, with the benefit of the effect of the leverage means, the wrench is simply reversed in position so that the direction of swing of the handle member is opposite to that denoted by the arrow referred to. The keepers 8 and 25 maintain the jaws A and B in proper working relation, the adjacent faces of the bars 4 and 5 having a close sliding fit. The flat portions 14 and 15 of the head 10 and the adjacent end portion of the bar 4 form an efficient stop means G limiting the swing of the handle member in one direction. The adjustment of the threaded head 18 is conveniently effected by twisting the head 20 upon the shaft 19 with the fingers of one hand while grasping the handle portion D with the other hand; and the movement of the jaw B is thus effected in a positive and convenient manner. The working parts of the adjusting means are all housed and protected from injury, thus adding life to the wrench and obviating repair and readjustment. The provision of leverage means acting in connection with and through the adjusting means for the wrench jaws, and embodying the handle member of the wrench, enables the application of an effective final bite or pinch of the jaws upon the work in the ordinary manipulation of the tool.

In conclusion, I do not desire to be understood as limiting myself to the specific provision, construction, combination, association and relative arrangement of parts, members

and features; but reserve the right to vary the same in adapting the improvements to varying conditions of use, without departing from the spirit of the invention or the terms
5 of the following claims.

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

10 1. A wrench comprising relatively movable jaws, a pivoted handle member; and adjusting means for the jaws comprising co-engaging threaded portions and a shaft rotative in the handle member, said shaft being pivotally connected with one of said
15 threaded portions.

2. A wrench, comprising relatively movable jaws, a pivoted handle member; and adjusting means for the jaws embodying a shaft rotative in the handle member and
20 pivotally connected with the remaining portion of the adjusting means.

3. A wrench, comprising relatively movable

jaws, a pivoted handle member; and adjusting means for the jaws comprising co-engaging portions, and a rotative shaft pivotally connected with one of said co-engaging portions. 25

4. A wrench, comprising relatively movable jaws, a pivoted handle member; and adjusting means for the jaws comprising co-engaging threaded portions, and a shaft rotative in the handle member, said shaft being pivotally connected with one of said threaded portions at one end and provided with a head at the other end forming a portion of the handle member. 35

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

CLINTON E. SOMERS.

Witnesses:

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F. A. MANSFIELD.