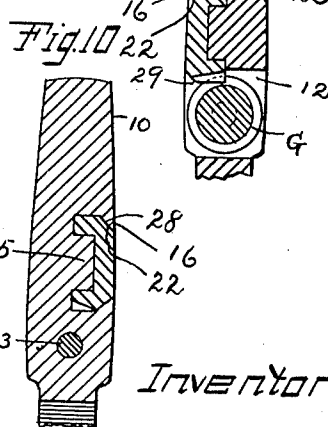
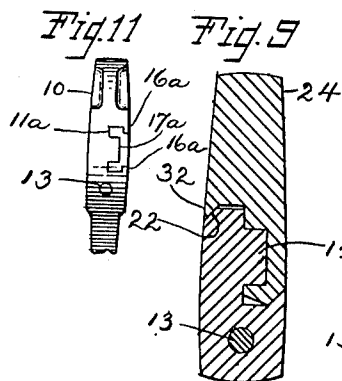
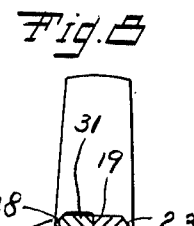
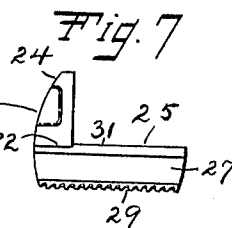
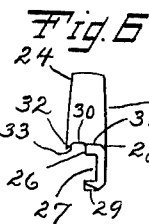
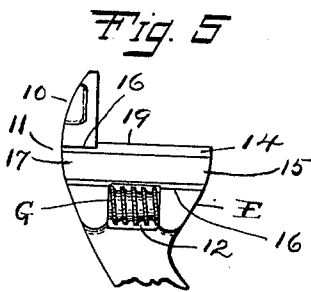
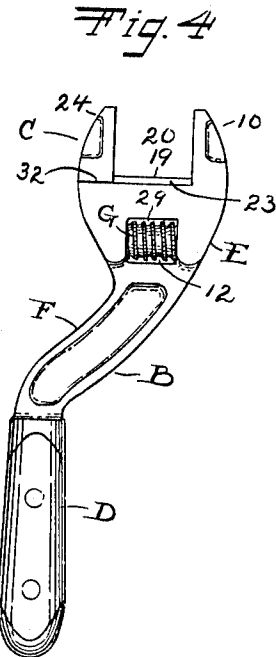
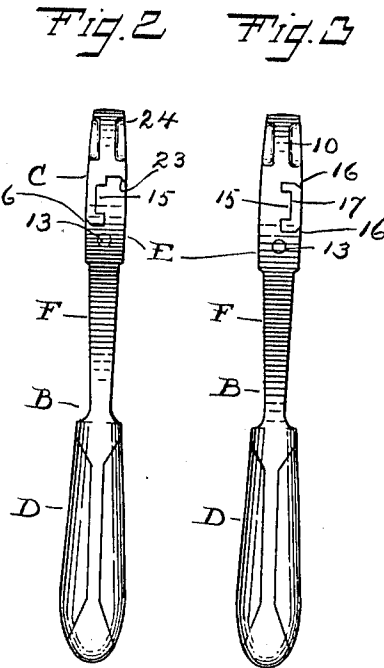
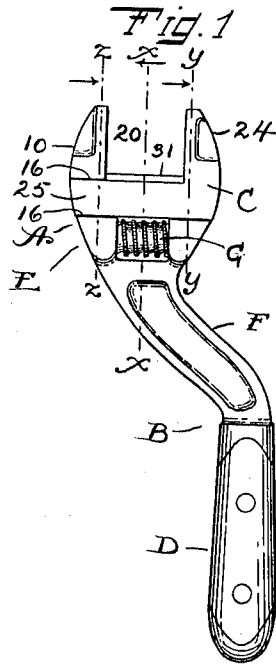


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WRENCH.
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Witnesses

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WRENCH.

1,061,339.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM S. THOMSON, a citizen of the United States, residing at Plantsville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to improvements in wrenches, and the object of my improvements is simplicity and economy in construction and convenience and efficiency in use, and particularly to produce a wrench whose parts can be made by the drop forging process and with a minimum of attention to the finishing process.

In the accompanying drawing:—Figure 1 is a side elevation of my improved wrench. Fig. 2 is an edge view of the same. Fig. 3 is a reverse edge view of the same. Fig. 4 is a reverse side elevation of the same. Fig. 5 is a side elevation of part of the handle member. Fig. 6 is an edge view of the jaw member. Fig. 7 is a reverse side elevation of the same. Fig. 8 is a sectional view on an enlarged scale, on the line *x x* of Fig. 1. Fig. 9 is a sectional view on the line *y y* of Fig. 1. Fig. 10 is a sectional view on the line *z z* of Fig. 1. Fig. 11 is a view similar to Fig. 3, in part broken out and on the same scale, of a modification of the handle and jaw member, showing a different form of recess and groove.

My wrench A comprises a handle member B and a movable jaw member C operatively held together in a manner to be described. The handle member B comprises a handle D at one end, a head E at the other end, and a shank F intermediate the said ends.

The head E comprises the jaw 10 located at the extreme outer end and to one side of the axial line, and an open way 11 located inward from the jaw 10 and at the base thereof and extending transversely across the body portion along the outer edge 19 of the said body portion, and a central slot 12 between the way 11 and the shank F in which is operatively housed a worm G, pivotally mounted on a pivotal pin 13. The pivotal pin 13 extends across the body portion and at about the middle of the thickness thereof. The outer edge 19 corresponds to the inner boundary of the mouth 20 of the wrench A. The transverse way 11 crosses the front face of the head E and extends in width from the said edge 19 toward the

shank F sufficiently to expose the thread portion of the worm G, and is of depth corresponding to approximately half the thickness of the body portion of the head E. The portion of the way 11 extending along the base of the jaw 10 and in alinement with the outer edge 19 is overhung by the said jaw 10, whereby the said portion is in the form of a channel 17, the bottom 14 of which is a continuation of the bottom 14 of the way 11, the outer boundary of which is formed by the base of the jaw 10, and the inner boundary of which is formed by the body of the head E, and which is a continuation of inner boundary of the way 11, which latter is interrupted by the central slot 12 to accommodate the worm G. The bottom 14 of the way 11 and channel 17 is interrupted along the middle portion by a rib 15 of appreciable width and depth, which extends the full length of the way 11 transversely across the head E. Lips 16 are provided on the body portion of the head E and the base of the jaws 10 that overhang the channel space 17 and the way 11.

The interior face of the lip 16 may be inclined as shown in Fig. 8 providing a wedge shape therefor, or the said lip 16^a may be of some other shape as square or rectangular as shown in Fig. 11, suitable to provide a way 22 on the inner face of the lip 16. The outer corner of the body portion of the head E adjacent the outer edge 19 is beveled off to form the back way or bevel edge 23.

The movable jaw member C comprises an L-shaped structure having a longitudinally extending jaw 24 suitable for coöperating with the jaw 10 and like the said jaw 10 of the same thickness as the body of the head E and having as the other arm a transversely extending member 25 that is of dimensions and shape suitable for filling the way 11 and channel 17. Accordingly the arm 25 comprises a body portion having on the interior face a base 26 corresponding to the base or bottom 14 of the way 11 and channel 17 and has at the middle a longitudinally extending groove 27 that fits the rib 15. On the exterior face the front wall surface along the middle portion is flush with the front wall surface of the body of the head E and has the lateral edges bevel shaped to form ways 28 suitable for engaging with and coöperating with the ways 22 on the lips 16. The interior corner on the

lower edge of the arm 25 is provided with a rack 29 suitable for engaging with the worm G.

The arm 25 and jaw 24 of the jaw member C are flush on the front face, the thickness of the arm 25 being limited by the depth of the way 11 and channel 17, and the thickness of the jaw 24 corresponds to the full thickness of the body of the head E, wherefore the jaw 24 overhangs the arm 25 on the rear face. The base of the jaw 24 comprises a transverse portion 30 along the inner edge suitable for engaging with the outer edge 19 and approximately in the same plane as the top edge 31 of the arm 25 and along the exterior edge is provided with an inwardly extending overhanging lip 32 corresponding in shape and dimensions to the way 23 adjacent the outer edge 19 and having the interior wall 33 suitable as a way to cooperatively engage with the way 23.

As described the handle member B and jaw member C are provided with means for holding the groove 27 in engagement with the rib 15 and which means are located adjacent the ends thereof and comprise on the inner edge the lips 16 engaged with the inner bevel edge of the arm 25 at both ends, and on the outer edge comprise at the end adjacent the jaw 10 the lip 16 at the base of the said jaw 10 engaged with the outer bevel edge of the arm 25 and at the end adjacent the jaw 24 the lip 32 at the base of the jaw 24 engaged with the outer bevel edge of the head E. In this case the edge 31 of the arm 25 and the adjacent beveled ways 28 combine to form a rib that cooperates with the recess formed by the outer lip 16 and similarly on the inner side the rack 29 and beveled edge 28 engage with the recess formed by the inner recess 16. Accordingly adjacent the channel 17 and jaw 10 there is such a recess at both the top edge and the bottom edge of the arm 25 and a rib on the arm 25 to correspond, and at the portion of the way 11 remote from the jaw 10 there is no such recess along the outer edge 31 and way 28 and in lieu thereof there is the rib and recess formed by the edge 19 and way 23 and edge 30 and way 31 already mentioned.

The engagement of the recess 27 and the rib 15 serves to guide the jaw member C relatively to the head E and body member B as the jaw member C is moved back and forth responsive to a turning movement of the worm G and to positively position the jaws 10 and 24 relatively one to the other and in normal conditions of use. The outer edge 31 of the arm 25 is flush with the outer edge 19 of the head E and together therewith constitutes the inner boundary or wall

of the mouth 20 of the wrench A. As described, the groove 27 and rib 15 constitute the ways proper that cooperate to guide and position the jaws relatively one to the other and the holding means for the work and the overhanging lips 16 and 32 serve as means for holding the said ways in position for cooperation.

It is apparent that some changes from the specific construction herein disclosed may be used and therefore I do not wish to be understood as limiting myself to the precise form of construction shown and described, but desire the liberty to make such changes, in working my invention as may fairly come within the spirit and scope of the same.

I claim as my invention:—

1. A wrench comprising a handle member having a head, a way extending across said head, a rib located in the said way, a moving jaw member comprising an arm, the said arm fitting and filling the said way and provided with a recess cooperative with the said rib, means for moving the said arm relatively to the said way, and means for maintaining the said rib and recess in engagement, the said latter means comprising lips on the said members each overhanging an edge of the other member, and the said lips of limited extent and located adjacent the outer exposed faces of the said members and separated from the inner face of the member overhung thereby by an appreciable space.

2. A wrench comprising a handle member having a head and a jaw member having an arm, the said head having a way, the said way being open on one face of the said head, extending across the same and positioned along the outer edge thereof, a jaw at one end of the said way and having a base extending over the said way, the said arm fitting and filling the said way and extending underneath the said base, a second jaw at the end of the said arm remote from the said base and first jaw, and having a base, the said latter base extending over the said outer edge of the head and way, holding means for holding the said arm and way engaged comprising a lip extending from each of the said bases of the said jaws and the said lip of the one member overhanging the adjacent edge of the other member, whereby the said holding means are limited to the extent of the said bases of the said jaws and the space between the said jaws is free from holding means.

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Witnesses:

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