

UNITED STATES PATENT OFFICE.

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WRENCH.

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My invention relates to the type of wrench commercially known as the "crescent pattern."

The standard type of "crescent pattern" wrench commonly in use has a number of weaknesses; namely, the threads of the thumb nut only engage the rack at one point, and under a strain this is the first part to give way. Also the arm of the movable jaw is not supported on all sides by the walls of the open channel it operates in. Therefore, there is a tendency to spread the channels when the wrench is used in heavy duty.

The object of my invention is to provide a wrench wherein the threads of the lead screw will be engaged at all points.

Further, so to arrange the parts that the arm of the movable jaw will have its bearing in a channel of unbroken walls which surround all sides of this arm.

And further to provide a double acting lead screw for the more rapid adjustment of the jaw.

I attain my object in a wrench comprising a stock, provided with one movable jaw, and formed with a channel, and a companion jaw provided with a perpendicular arm bearing slidably in said channel, the latter having unbroken walls completely around all sides of said arm. A double ended right and left screw is threaded in the said jaw, on an axis parallel with said arm and an adjustment nut is fixed on said screw between the opposed faces of said jaws. The stock is formed with an integral portion protruding from the interior face of the jaw, integral with the stock, and adapted to pass under said nut, whereby the length of the top of said channel is extended for the space occupied by the thickness of said nut, and thus the walls correspondingly increase the strength of said channel.

My invention is constructed and used as illustrated in the drawings, and hereinafter described.

In the drawings:

Fig. 1 shows a side elevation of my invention with the jaws partly opened, and parts thereof cut away to show the double ended lead screw and its bearings by which their strength is derived.

Fig. 2 is a plan view of my wrench showing the arms of the movable jaw as bearing

in a channel in the stock of the wrench, the walls of said channel extend unbroken around all sides of said arm,

Fig. 3 shows a section taken on the line 3—3 of Fig. 1, and

Fig. 4 is a perspective view of the jaw integral with the stock showing the channel in this jaw for the arm of the companion jaw, and illustrating the construction whereby the length of the top of said channel is extended for the space occupied by the thickness of said nut, correspondingly increasing the strength of said channel.

The handle and frame *a* of the immovable jaw *b* of which it is an integral part comprise the main structure of the wrench.

The movable jaw *c* is adjusted by a double acting lead screw *d* on which the threads are opposed and the adjustment nut *e* fixed on the center of said screw and situated between the jaws *b* and *c* serve as a means for actuating the said screw. The double acting screw *d* operates in the holes *g*. Thus all the threads are engaged at all points. The arm *f* of the movable jaw *c* moves in the channel *h*, and being surrounded by the unbroken walls of the latter, which are extended along the top as at *j* in consequence gives great strength to my wrench. A pin *i* may be provided at the end of the arm *f* as a stop if desired.

All the strains in this wrench will be positive and direct. It comprises only three parts which are of simple construction and relatively great in strength. The double end lead screw is well seated and as there is no play or lost motion when in use, it will hold a bolt or nut with no possibility of slipping off.

I claim:

A wrench comprising a stock formed to provide a handle portion and a fixed jaw projecting beyond the handle portion, the handle portion immediately adjacent the jaw being widened and formed in such widened portion with a channel open at the ends and arranged in a plane at right angles to the face of the jaw, a portion of the wall of the channel next to and extending laterally of the jaw being cut away to provide an opening into the channel and to leave a square abutment between said opening and the face of the jaw, a movable jaw having

an arm arranged at right angles to the operating face of such jaw and of a size to slidably fit in said channel, said movable jaw at the juncture of the jaw proper and arm being of a size to pass through the channel opening formed in the wall of the channel next the fixed jaw, a rod threaded in the respective jaws, and a nut secured on the rod between the jaws for operating the rod to relatively move the jaws, said nut 10 having a thickness approximating the projection of said abutment beyond the face of the fixed jaw, whereby the jaws may be caused to approach each other to limit permitted by the abutment.

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