



# UNITED STATES PATENT OFFICE.

JAMES WHITE, OF CLEVELAND, OHIO.

## WRENCH.

Specification forming part of Letters Patent No. 49,208, dated August 1, 1865.

*To all whom it may concern:*

Be it known that I, JAMES WHITE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Screw-Wrenches; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a side view. Fig. 3 is a vertical section in the direction of the line *xx* in Fig. 2.

Like letters of reference denote like parts in the several views.

My improvement relates to a screw-wrench constructed in such a manner that the jaws can be adjusted or set at any angle in turning a nut or bolt, so that it answers every purpose of an *S*, monkey, or any other kind of wrench in ordinary use.

In the figures, *A* and *B* represent the jaws. In reference to each other the jaw *A* is stationary and the jaw *B* adjustable, being moved along on the cross-piece *C* by means of the screw *D*, working in a thread or concave rack, *E*, on the top of the cross-piece, by means of which the jaws are adjusted to the size of the nut to be turned.

*F* is a circular rack extending from the lower part of the jaws, to the center of which, on each side, are connected side pieces, *G* and *H*, of the shank *N*. These pieces have projections *b b* (seen in Figs. 3 and 4) extending into the opening of the circular rack, forming a boss or journal upon which the rack moves, rendering the connection strong and firm, being kept in place by the screw *n* through the center.

In the shank *N* are arranged devices by which, in connection with the circular rack, the jaws can be set at any angle.

The piece *G* is removed in Fig. 3 to represent these devices, which consist of a stop, *L*, with a pin, *L'*, secured to it that extends out beyond the side of the shank, by which the stop is moved down out of the notches *d* in the rack, the spring *N'* causing the stop to move back when the pressure from the pin is removed.

*J* is a catch under the stop, pivoted to the

shank, and operated by the spring *S* and pin *I* secured to it.

When it is desired to turn the jaws round on either side to any angle, as indicated by the dotted line *P* in Fig. 2, push in the pin *I*, which removes the catch *J* from under the stop, as indicated by the dotted lines *l*. The stop *L* can then be moved down out of the notch in the rack by the pin *L'*, which moves in a slot in the shank. The rack, with the jaws, can now be turned round and adjusted to any inclination, according to the notches in the rack, when, by removing the pressure from the pin *L'*, the spring *N'* will move up the stop into a notch of the rack, and the catch *J* will be sprung under the stop by the spring *S*, which will retain it firm and immovable in place, securing the jaws in the desired position.

The piece *G* is secured in place by the screws *n*, and there are dowels on the under side that fit into holes *h* in the shank, rendering it more firm on the shank.

A screw-wrench constructed in this way, being so readily adjusted to any position, answers the purpose of most other machine-wrenches in ordinary use.

I am aware that wrenches have been made with a pawl and ratchet working in one direction only; but my invention differs from such in that it may be worked in either direction without removing the wrench from the nut, as is not the case with other pawl-and-ratchet wrenches. This I accomplish by the aid of the stop *L*, Fig. 2, acting in a right line with the shank *M* and center of the disk, the end of the stop being square and made to fit into the notches *d* on the circumference of the disk, preventing said disk from turning in either direction while working the nut upward or downward.

What I claim as my improvement, and desire to secure by Letters Patent, is—

The stop *L*, operating as described, in combination with the disk *F* and adjustable jaws of the wrench, whereby they can be used at any desirable angle and in either way without removing the wrench from the nut, as specified.

Witnesses:

JAMES WHITE.

W. H. BURRIDGE,

J. HOLMES.