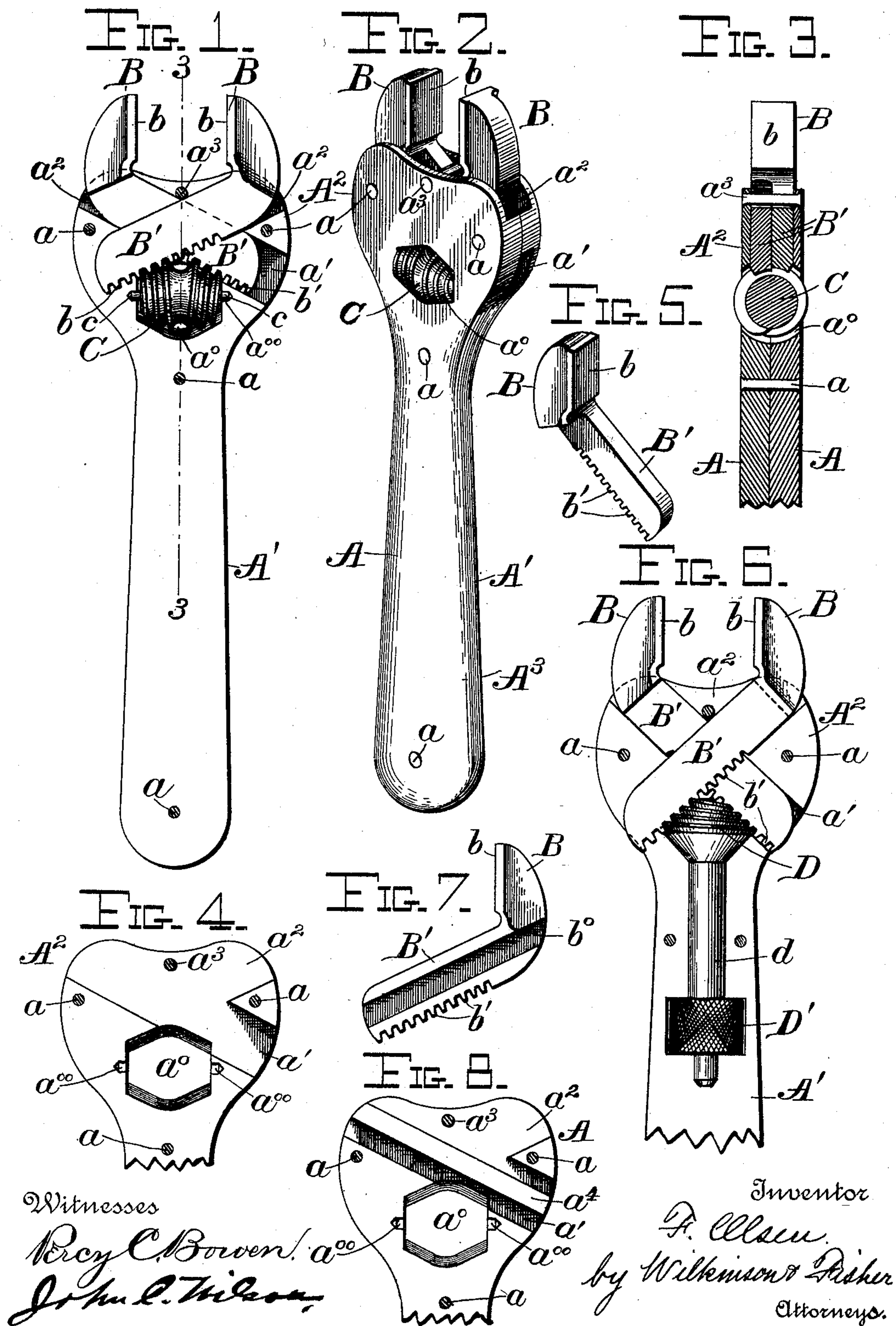


(No Model.)

F. OLSEN.
WRENCH.

No. 603,572.

Patented May 3, 1898.



UNITED STATES PATENT OFFICE.

FREDERICK OLSEN, OF NEW YORK, N. Y.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 603,572, dated May 3, 1898.

Application filed August 13, 1897. Serial No. 648,137. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK OLSEN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in wrenches; and it consists of the novel construction and arrangement of the several parts, as will be hereinafter fully described and claimed.

Referring to the accompanying drawings, in which like letters or reference designate the same parts in the several views, Figure 1 is a side elevation of my improved wrench with one side of the head and handle removed, showing the position of the jaws and screw for operating the same. Fig. 2 is a perspective view of the complete wrench. Fig. 3 is a vertical transverse section taken on line 3 3 of Fig. 1. Fig. 4 is an elevation of the inside of one of the heads. Fig. 5 is a perspective view of one of the jaws. Fig. 6 is a side elevation with one side of the head and handle removed, similar to Fig. 1, showing a modified form of jaws and screw for operating the same. Fig. 7 is a side elevation of a modified form of jaw, and Fig. 8 is an elevation of the inside of the head to be used with the said modified form of jaws.

The head and handle are formed in two pieces A and A', which are exact counterparts of each other and adapted to be placed together, as shown in Fig. 2, and held by rivets or screws a . The pieces A A' are enlarged at their ends to form the head A² of the wrench and are rounded along their outer edges to form the handle A³.

Across the head, at an angle of about sixty degrees with the axis of the handle, is cut a groove a' , which extends entirely across the head and is open at both ends when the two pieces are placed together, and the inner portions of the heads are cut out above the said grooves, as at a^2 .

Just below the grooves a' are formed openings a^0 , having journal-bearings a^{00} , formed half in each of the pieces A and A'. The

jaws B are formed as shown in Fig. 5, the jaw proper having the flat holding-surface b and the rack-bar B' extending downwardly at an angle of about one hundred and twenty degrees from the flat surface b . The said rack-bars B' are only half as thick as the jaws proper and are arranged to slide in the grooves a' , which are of corresponding depth, so that when one of the jaws is in position in one of the pieces A or A' the said rack-bar will be in the groove a' with its side flush with the inner flat surface of the said piece. Thus when both of the jaws are in place in the head the said rack-bars B' will cross each other, as shown in Fig. 1, one of the rack-bars being in the groove in each of the side pieces A and A' and the lower part of the jaws proper being in the cut-away portions a^2 of the heads A².

A right and left hand screw C in the form of a double cone is arranged in the opening a^0 and is provided with journals c , which are journaled in the journal-bearings a^{00} , the screw-threads on one cone engaging the teeth b' on one of the rack-bars B' and the threads on the other cone engaging the teeth b' on the rack-bar of the other jaw.

The screw C is large enough to project through the openings a^0 in the side pieces A A' to allow the said screw to be turned with the fingers, and the outer edges of the screw-threads thereon may be milled, if found desirable, to give a better hold when turning. By turning the said screw C the rack-bars B' will be moved in opposite direction, thus moving the jaws B toward or away from each other and adjusting the wrench to different-sized nuts, as will be readily understood.

The pin or rivet a^3 , which passes through the center of the head just above the two rack-bars B', prevents the jaws from raising up in the space a^2 . Should the said pin a^3 be found insufficient to hold the jaws in position, a groove b^0 may be cut in the outer sides of the rack-bars B', as shown in Fig. 7, and ribs a^4 , formed in the grooves a' , as shown in Fig. 8, to enter the said grooves b^0 , which will hold the jaws firmly in position and yet allow them to slide toward or away from each other.

In Fig. 6 of the drawings I have shown a modification in which the jaws and rack-bars are substantially the same; but they are op-

erated by a single screw-threaded cone D, arranged vertically in the head A² and engaging the teeth b' on the rack-bar B', the said cone having a shaft or spindle d extending
5 down inside of the handle and provided with a milled thumb-piece D', which projects through the sides of the handle and may be turned by the thumb and fingers, thus turning the cone D and moving the jaws toward
10 or away from each other, as will be readily understood.

The operation of the invention will be clearly understood from the foregoing without further description.

15 Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a wrench, the combination with a handle; a head thereon provided with a pair of
20 intersecting grooves; of a pair of jaws adapted to slide in said grooves, and provided with teeth thereon; and a screw engaging the teeth on said jaws, for sliding the latter, substantially as described.

25 2. In a wrench, the combination with a handle; a head thereon provided with a pair of intersecting grooves; and a pair of jaws having toothed bars thereon extending into said grooves; of a screw having threads thereon
30 engaging the teeth on said bars, and adapted to cause said jaws to slide in said grooves when said screw is turned, substantially as described.

3. In a wrench, the combination with a handle; a head thereon provided with a pair of
35 intersecting grooves; a pair of jaws having toothed bars thereon extending into said grooves and guides for said bars; of a screw having threads thereon engaging the teeth
40 on said bars, and adapted to cause said jaws to slide in said grooves when said screw is turned, substantially as described.

4. In a wrench, the combination with a handle; a head thereon provided with a pair of
45 intersecting grooves; a pair of jaws having toothed bars thereon extending into said grooves; of a screw having conical threads thereon engaging the teeth on said bars, and adapted to cause said jaws to slide in said
50 grooves when said screw is turned, substantially as described.

5. In a wrench, the combination with a handle; a head thereon provided with a pair of
55 intersecting grooves; a pair of jaws having toothed bars thereon extending into said grooves; of a double-conical screw having right and left hand screw-threads thereon engaging the teeth on said bars, and adapted when turned, to cause said jaws to slide in
60 said grooves, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK OLSEN.

Witnesses:

C. E. LANE,

N. W. JOHNSTON.