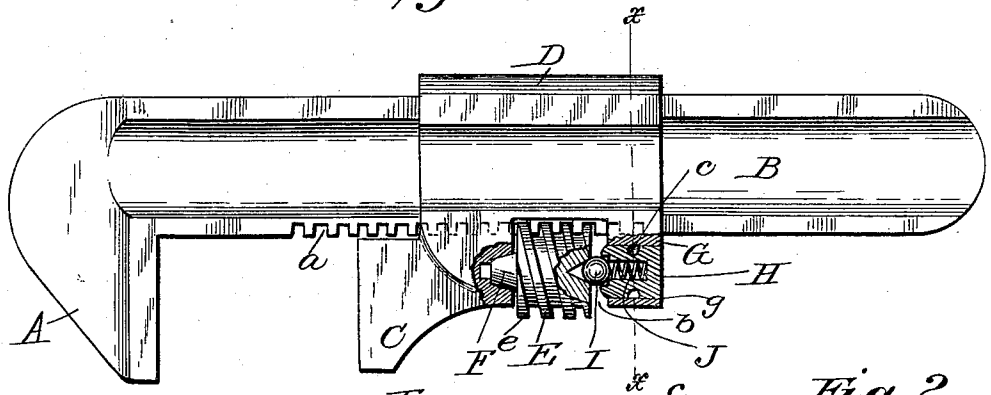
(No Model.)

S. T. FREAS.

WRENCH.

No. 593,882. Patented Nov. 16, 1897.

Fig. 1.



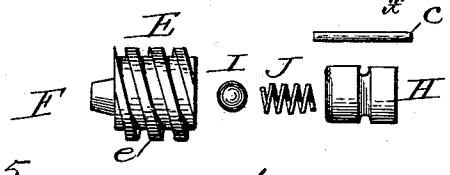


Fig. 3.

Fig. 2

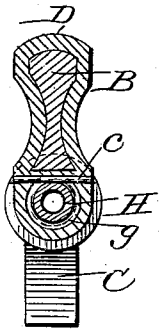


Fig. 5.

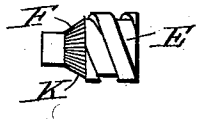


Fig. 4

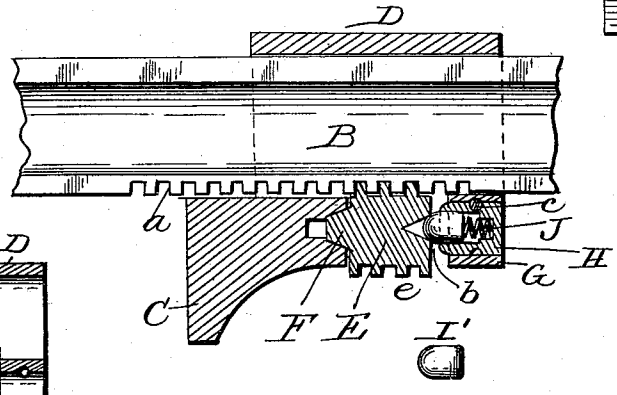
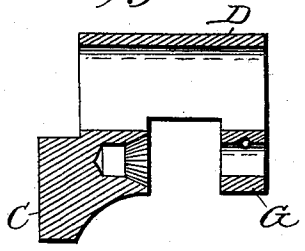


Fig. 6



Witnesses
Franck L. Ourand.
August Peterson.

Inventor
Samuel T. Freas.
per Fred D. Tasker.
Attorney

UNITED STATES PATENT OFFICE.

SAMUEL T. FREAS, OF TRENTON, NEW JERSEY, ASSIGNOR TO THE AMERICAN SAW COMPANY, OF SAME PLACE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 593,882, dated November 16, 1897.

Application filed July 24, 1897. Serial No. 645,833. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL T. FREAS, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, 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 present invention relates to an improvement in wrenches—such, for instance, as bicycle-wrenches or other small-sized simple and convenient wrenches.

The object of the invention is to simplify and cheapen the construction of wrenches of this character; and the invention therefore consists in the construction and combination of parts, substantially as will be described and claimed.

In the annexed drawings, Figure 1 is a side view of my improved wrench, partly broken away. Fig. 2 is a cross-section on line *x x*, Fig. 1. Fig. 3 is a view of the adjusting-nut and the coacting parts. Fig. 4 is a detail view of a modification of the wrench. Fig. 5 is a detail view showing the cone of the nut or knurl formed with ratchets or teeth. Fig. 6 is a detail sectional view showing the recess in the sliding jaw in which the cone of the nut works formed with ratchets or serrations.

Like letters denote like parts in all the figures.

A denotes the fixed jaw which is formed on the end of the handle B. The edge of handle B adjacent to the biting edge of jaw A is provided with a series of parallel inclined notches and ribs *a*, equivalent in arrangement to a section of a screw, the same being engaged by the adjusting-nut.

The sliding or movable jaw C is formed integral with the sleeve or boxing D, that embraces the handle B and reciprocates thereon, it being observed that said handle B is longitudinally concaved or hollowed out on the opposite sides thereof, for the sake of lightness and cheapness, and that the sleeve D is correspondingly shaped, although I reserve the liberty of varying the precise form of these parts as much as may be necessary.

The sleeve or boxing D at a point adjacent to the series of threads or ribs *a* is provided with a square-cut notch *b*, wherein is situated the adjusting nut or knurl E, having several screw-threads, preferably three, as at *e*, which engage the handle-threads *a*, by which engagement the revolution of the adjusting-nut E serves to propel the sliding jaw toward or away from the fixed jaw. The nut E is furnished at one end with a projection or cone F, which loosely enters a correspondingly-shaped seat in the sliding jaw C. The opposite end of the nut E is fashioned with a depression or countersink. The adjacent end of the notch *b* formed by the projection G on the sleeve or boxing D is bored at *g* to receive a cup H, that is held in the bored projection G by means of a pin *c*. The end of the cup H nearest to the nut E is shaped to serve as a bearing for the single spherical ball I or pin that rests loosely between the aforesaid cup H and the countersink in the contiguous end of the nut. Within the hollow cup H is a spiral spring J, tensioned against the ball I and causing the latter to press easily and constantly against the nut E.

As seen in Fig. 5, the cone F is formed with ratchets or serrations K, which bite into the wall of the recess in the sliding jaw, or the ratchets or serrations may be formed in said recess, or said ratchets may be formed in both said recess or cone, as may be found most convenient or desirable. The object of these ratchets is to prevent the nut or knurl from rotating when pressure is exerted on the sliding jaw. The sliding jaw can be adjusted toward the fixed jaw by simply pushing it forward; but when an object is grasped between the jaws and pressure is exerted on the sliding jaw the ratchets will engage with each other, or the ratchets of the recess or cone, as the case may be, will bite into the adjoining part and thus prevent the nut from rotating.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrench, the combination of the fixed jaw, the sliding jaw, the adjusting-nut having a projection that enters the sliding jaw, and the ball-bearing support for the nut,

consisting of the removable cup in the end of the sliding jaw and a ball between said cup and the countersunk end of the nut, substantially as described.

2. In a wrench, the combination of the fixed jaw, the sliding jaw, the adjusting-nut having a projection that enters the sliding jaw, and the ball-bearing support for the nut, consisting of the hollow removable cup in the sliding jaw, a ball between said cup and the nut, and a spiral spring within the cup bearing against the ball, substantially as described.

3. In a wrench, the combination with a threaded handle carrying the fixed jaw, of the sliding jaw on said handle, an adjusting-nut engaging the threaded handle and having a cone engaging with a recess in the sliding jaw, the ratchets for preventing rotation of the nut, and the ball-bearing support for the nut, substantially as described.

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

SAMUEL T. FREAS.

Witnesses:
C. J. MURRAY,
ALFRED L. ECCLES.