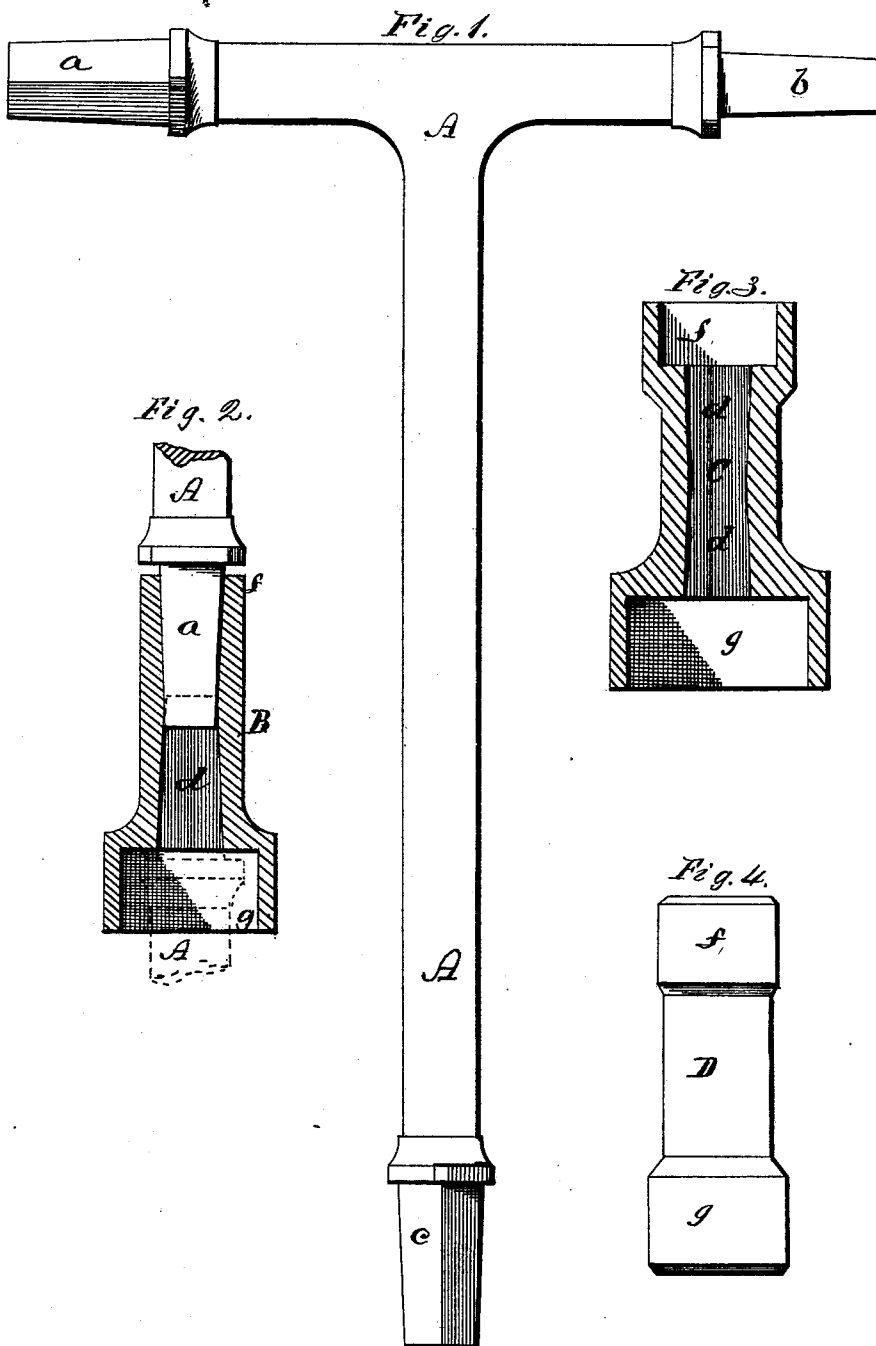


G. KETTLEWELL

Wrench.

No. 198,544.

Patented Dec. 25, 1877.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE KETTLEWELL, OF BELOIT, WISCONSIN, ASSIGNOR TO THE PARKER
AND STONE REAPER COMPANY, OF SAME PLACE.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **198,544**, dated December 25, 1877; application filed
January 2, 1877.

To all whom it may concern:

Be it known that I, GEORGE KETTLEWELL, of the city of Beloit, in the county of Rock and State of Wisconsin, have invented a new and useful Improvement in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 a side view of the wrench-handle; Fig. 2, a central longitudinal section of one size of the removable and reversible socket attachments, together with one of the tenons of the handle, showing the mode of uniting the parts; Fig. 3, a central longitudinal section of another size of the removable and reversible socket attachments; Fig. 4, a side view of another size of the socket attachments.

Like letters designate corresponding parts in all of the figures.

One feature of my invention consists in a T-shaped wrench-handle, A, with socket-tenons *a b c*, respectively, on the three arms thereof.

The other feature of my invention consists in a series of removable reversible socket attachments, B C D, each provided with a socket mortise or mortises, *d d*, to fit upon the tenons of the handle, and thereby to attach the said parts to the handle, and each provided with nut-sockets *f g* at its two ends, of different sizes for different sizes of nuts, the several socket attachments also having sockets different in size one from another.

For convenience and general applicability, all the socket-tenons *a b c* are made of uniform size, as also all the socket-mortises *d d* to receive the tenons, whereby any socket attachment will fit any socket-tenon. Also, for the purpose of easily attaching and removing, while forming a firm and secure attachment, the tenons and mortises are made somewhat tapering or pyramidal in form, as shown in the drawings.

Properly, or most conveniently, the two socket-mortises at the respective ends of the socket-pieces meet each other, thus extending through the length of the same, though this construction is not essential.

Fig. 2 shows the mode of attaching the socket-pieces to the handle, the full outline of the adjacent handle-tenon being represented at one end, and a dotted outline thereof at the other end.

There may be any desired number of these socket attachments, all differing in size of sockets from one another, as shown, and each having different sizes of sockets *f g* at its two ends.

The preferably rectangular tenons *a b* of the head of the T-shaped handle are diagonal to each other—that is, their angles are forty-five degrees, or thereabout, from each other in the circle around their common axis, as represented. The object of this is, by shifting the tenons alternately to the socket attachment used, or shifting two equal sockets on the respective tenons alternately to the nut to be turned in confined places, to turn the nut, when necessary, by merely moving the handle through the eighth of a circle, whereas the most that can be done with a single socket on a nut of the same number of sides is to turn it with a quarter-circle movement of the handle at each renewal of position.

The T shape of the handle also adapts it to different positions, forms, or conditions of limited or obstructed places, the long shaft being suitable for one kind of position or place, and the cross-head thereof being suitable for other positions or places.

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

1. Reversible wrench-socket attachments B C D, constructed and operating substantially as and for the purpose herein specified.

2. The combination of a wrench-handle, A, having socket-tenons *a b c*, with removable socket attachments B C D, having socket-mortises *d d*, to fit upon the tenons of the handle, substantially as and for the purpose herein specified.

3. A T-shaped wrench-head, A, having tenons *a b*, arranged at angles of forty-five degrees to each other in the circle of their axis, substantially as and for the purpose herein specified.

4. The reversible socket attachments A B C, having slightly-tapered mortises in both ends, to receive similarly-formed tenons on the wrench-handle, substantially as and for the purpose herein specified.

GEORGE KETTLEWELL.

Witnesses:

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OTHO H. ORTON.