

C. ELTERICH.
TAP-WRENCH.

No. 192,423.

Patented June 26, 1877.

Fig. 1.

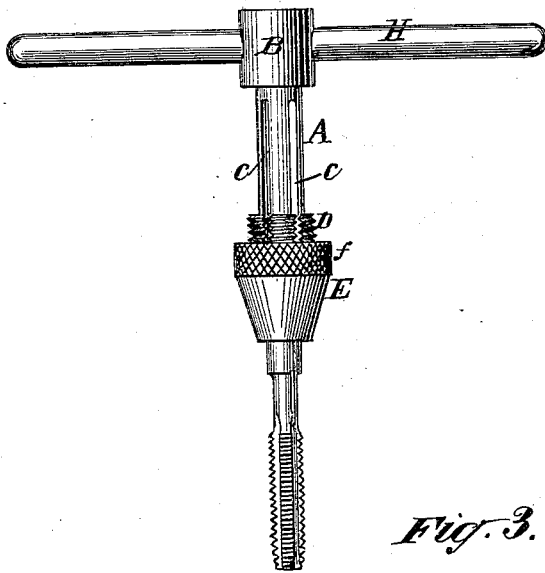


Fig. 2.

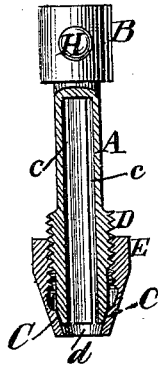


Fig. 3.

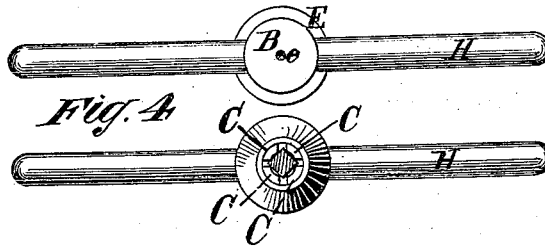


Fig. 4.

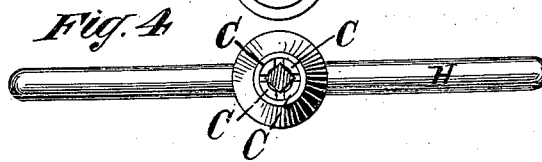
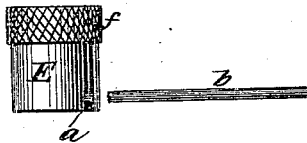


Fig. 5.



Witnesses.

John Becker.
Fred. Haynes

Inventor.

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UNITED STATES PATENT OFFICE.

CHARLES ELTERICH, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND
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IMPROVEMENT IN TAP-WRENCHES.

Specification forming part of Letters Patent No. **192,423**, dated June 26, 1877; application filed
December 27, 1876.

To all whom it may concern:

Be it known that I, CHARLES ELTERICH, of the city, county, and State of New York, have invented an Improvement in Tap-Wrenches and Broach-Wrenches; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

My invention is designed to supply a tap-wrench and broach-wrench, which, while adapted to hold different sizes of taps or broaches, at the same time holds the tap or broach with great firmness and steadiness, and in such manner that its central axis corresponds to the central axis of the shank of the wrench, and supplies ample leverage for the convenient and efficient manipulation of the tool.

My invention consists in the peculiar construction of the instrument, hereinafter fully set forth.

Figure 1 in the accompanying drawing represents a side view of the tap-wrench or broach-wrench holding a tap as it would while in use. Fig. 2 is a partial section of the wrench. Fig. 3 is a top view, and Fig. 4 is an under side view, of the same. Fig. 5 shows a modification of a portion of the tool.

A, Figs. 1 and 2, is the hollow spring-shank of the wrench, split longitudinally by saw-cuts *c*. The shank A is provided with a head, B, through which is inserted the cross-handle H, attached to said head.

The lower ends of the parts of the shank separated by the saw-cuts *c* form internally-concave gripping-jaws C, Figs. 2 and 4, which hold the square of the tap when the same is held in the wrench, as shown in Fig. 1. The splits *c* are four in number, and the angles of the shank of the tap or broach enter said splits, as shown in Fig. 4, and the tap or broach is thus much more firmly held by the inner edges of the jaws with a given pressure than it would be if the said square were held only by pressure across its flat sides. The thumb-nut which compresses said jaws, as hereinafter described, is therefore more easily turned to obtain the required pressure.

The exteriors of the gripping-jaws C are so

shaped that they together form the frustum of a cone, and at a considerable distance from the said jaws is formed, upon the exterior of the shank A, the screw-thread D, Figs. 1 and 2, forming a parallel-sided screw on said shank. The object in making the screw parallel-sided instead of conical, as has been done, is to render the working of the compressing-nut, hereinafter described, more easy, thus rendering the manipulation of the tool more convenient in use. It will be evident that the working of the nut must be far easier when the threads of the screw and of the nut are not pressed into each other, which, by wedge-like action, greatly increases friction.

The object in placing the screw-thread D at a considerable distance from the jaws C is to give the instrument capacity to hold a wider range of sizes of taps or broaches than it could otherwise have with a parallel-sided screw, as the mutual approach of the said jaws presses the threads of the screw out of the thread of the nut more or less, and the farther the said screw is placed from the said jaws the more the said jaws may be forced together without disengaging the thread of the screw from the thread of the nut.

E is the compressing-nut, formed with an interior thread, as shown in Figs. 1 and 2, to fit the parallel-sided screw D, and having an interior hollow cone, *d*, (shown in section in Fig. 2,) which works over and upon the conical outer surfaces of the gripping-jaws C, forcing said jaws toward each other, or allowing the same to spring apart, according as the said nut E is screwed on or off the parallel-sided screw D.

The exterior of the compressing-nut E generally has its lower part turned conical to correspond approximately with the interior hollow cone; but for larger sizes the sides of said nut are left parallel with each other, to give sufficient thickness for the formation of a socket, *a*, designed for the insertion of a short lever or tommy, *b*. The compressing-nut E is, moreover, milled at one end, as shown at *f*.

By this construction a most convenient and efficient tap-wrench or broach-wrench is provided, in which a tap or broach may, in all

the smaller sizes, be held with perfect rigidity by simply turning the compressing-nut E, and which may be used either by one or two hands; or the wrench may be used to cut a true screw-thread in a lathe by employing the center *c*, formed in the head B, in connection with the back center of the lathe.

I am aware that an awl-handle has been provided with a flat end screw and a conical nut arranged on said screw, and adapted to press together the two parts of a loose and independent split cone, arranged in the conical nut for holding an awl or other tool; but such is not my invention.

I claim—

The shank A, formed in one piece with the conical lower end parallel-sided screw-thread D, and the series of parallel slots extending from the conical lower end up through the screw-thread D, in combination with the screw-nut E, having the inner conical end *d*, substantially as described.

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Witnesses:

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