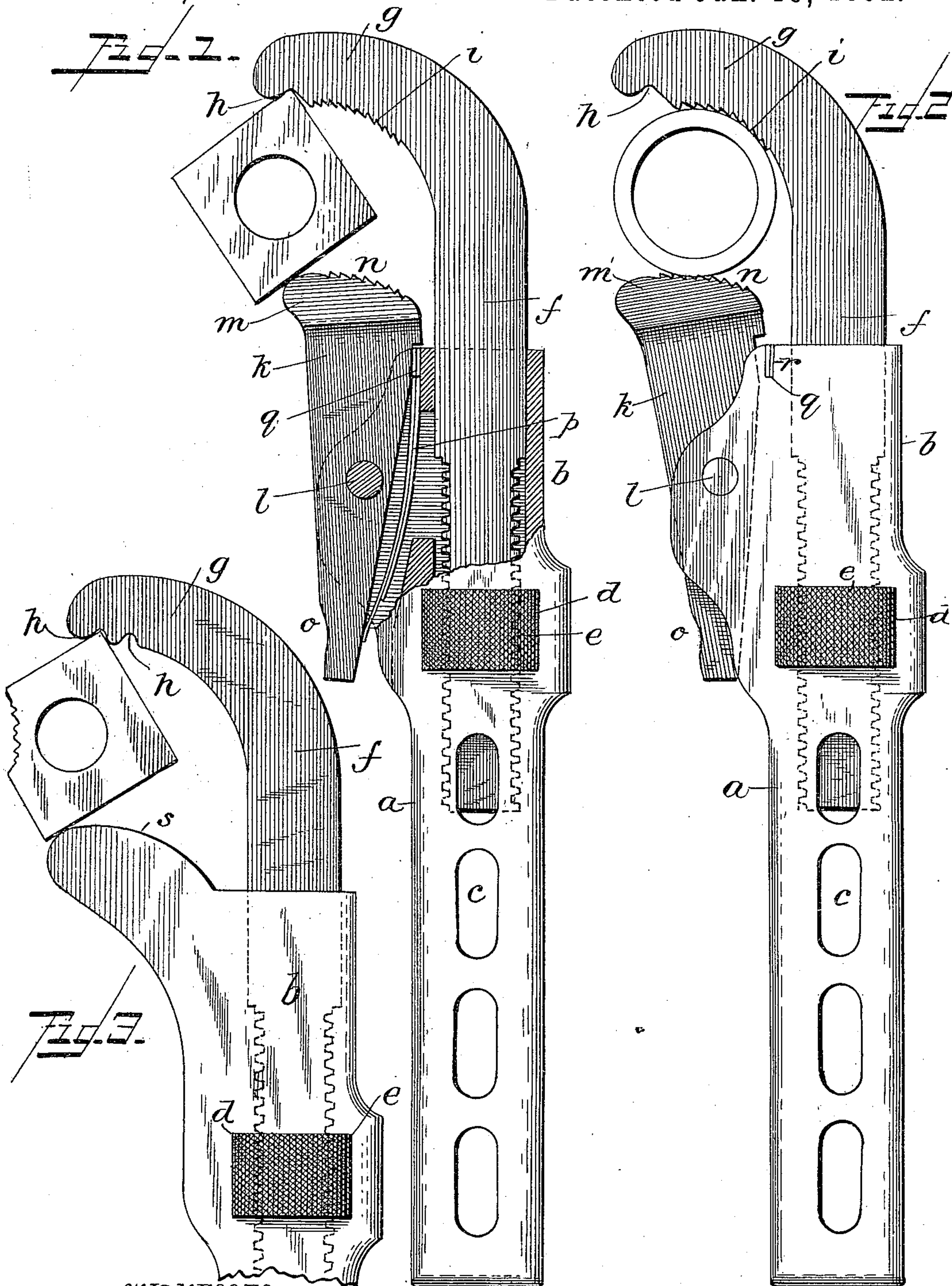


(No Model.)

D. H. CARPENTER.
WRENCH.

No. 467,151.

Patented Jan. 19, 1892.



WITNESSES
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UNITED STATES PATENT OFFICE.

DANIEL H. CARPENTER, OF ORLANDO, FLORIDA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 467,151, dated January 19, 1892.

Application filed October 3, 1891. Serial No. 407,641. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. CARPENTER, a citizen of the United States, residing at Orlando, in the county of Orange and State of Florida, have invented a certain new and useful Improvement in Wrenches, of which the following is a full, clear, and exact description.

This invention is an improvement on or a modification of the wrench forming the subject of my patent, No. 446,324, dated February 10, 1891, and it differs mainly from that wrench in having the jaw movable by means of a nut and screw-thread, and the rest fixed and either pivoted or rigid. In the case of the pivoted rest I construct the jaw with the transverse curvilinear groove or notch for use on nuts, and also provide it with a dentated or roughened surface to adapt it for pipes or circular objects, and I also make the rest with a partly smooth and partly roughened or dentated surface. In this way I get upon the two members of the wrench and integral therewith the requisites for using the wrench upon nuts and pipes without resorting to attachments, as heretofore common. In the case of the rigid rest the movable jaw is constructed with transverse curvilinear grooves or notches and the rest is made smooth or plain throughout, thus adapting it for nuts only.

Having thus stated the principle of my invention, I will proceed to describe the same in detail, and will then explain the best mode in which I have contemplated applying that principle, and finally will particularly set forth and distinctly point out and claim the part or improvement which I claim as my invention.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a side elevation, partly broken out, showing the use of my combined nut and pipe wrench in connection with a square nut. Fig. 2 is a side elevation of the same as applied to a pipe, and Fig. 3 is a side elevation of the nut-wrench.

While I do not limit my invention to the making of the handle *a* integral with the jaw-socket *b*, yet I prefer such construction, and have so illustrated both forms of my wrench. For lightness and facility of cast-

ing, I make the handle tubular and provide it with the lateral openings *c*. An opening or chamber *d* is made in the socket *b* to receive a circular nut *e*, having a milled or otherwise roughened periphery. This nut engages the screw-threaded shank *f* of the jaw *g*, and by rotation of the nut the said jaw is moved in and out of its socket *b*, in well-known manner. The jaw *g* is hook-shaped, and at its outer end is provided with any suitable number of transverse curvilinear grooves or notches *h* to receive the angle or corner of the nut without engaging it directly, but engaging it by adjacent sides, as clearly shown in the drawings, Figs. 1 and 2. For a combined nut and pipe wrench this jaw *g* is provided also with integral dentations or a roughening *i*, such as usually found in pipe-wrenches. The jaw-socket is extended forwardly to form ears *j*, and between these ears is the rest *k*, supported therein upon a pivot-pin *l*. One end of the rest *k* is made with a cam-surface, part of which *m* is smooth or plain and part *n* dentated or roughened. The smooth portion receives the side of a nut, as in Fig. 1, and the dentated portion receives the side of a pipe, as in Fig. 2. The shank of the rest is by preference wedge-shaped, and its other end is provided with a thumb-rest *o* for vibrating it upon its pivot-pin. Between the rest's shank and the jaw-socket I arrange a spring or springs *p*, whose free end acts against the shank to throw the active end of the rest toward the shank of the jaw. The spring may be secured to the socket in any suitable manner. I have shown it as having lateral projections *q*, which are forced into slits *r* in the socket. The springy vibratory movement of the rest assists in gripping the pipe to turn it, and also permits the wrench to slip upon the object grasped in order to get a fresh hold on it without taking the wrench off such object for that purpose. This springy and vibratory movement is not necessary in a wrench designed for nuts only.

It will be observed that the dentated portion of the jaw is described upon the arc of a circle, and hence the pipe is grasped by a large extent of surface, and this grasping may be stated to be at three points—forward and backward, on top, and midway be-

low—thus insuring a very firm hold. The first tooth of the series is somewhat longer than the others, as clearly shown, and this adds materially to the certainty and security of the grip.

In the nut-wrench, Fig. 3, the pivotal rest is substituted by a stationary rest *s*, which may be made integral with the handle and jaw-socket and have a plain or smooth active surface. In this form of wrench I prefer to make the jaw with at least two notches, in order that the wrench may be slipped about the nut from one to the other notch to get a fresh hold on the nut, in accordance with a feature of the invention set forth in my Letters Patent No. 463,137, granted November 17, 1891—that is to say, these notches enable the operator in narrow limits to turn, say, a hexagonal nut one-twelfth of a revolution by engaging it with the outer notch and then another twelfth by engaging it with the inner notch.

What I claim is—

1. A wrench having a handle, a jaw-socket, a revoluble nut in such socket, a jaw having a shank engaged by such nut, a hook-shaped end to such jaw, having a transverse curvilinear notch, and a cam-shaped fixed rest constructed with a plain or smooth surface to engage a nut by its sides, in contradistinction to its corners or angles, substantially as described.

2. A wrench having a handle, a jaw-socket, a revoluble nut in such socket, a jaw having a shank engaged by such nut, a hook-shaped end on such jaw, having a transverse curvilinear notch, and also a dentated or roughened surface, and a pivoted spring fixed rest having part of its surface smooth and plain and part of it dentated or roughened, substantially as described.

3. A wrench having a jaw provided with integral gripping portions, as *h* and *i*, independent of and separate from one another, for engaging, respectively, angular and round objects, and a rest, also having integral gripping portions, as *m* and *n*, also independent of and separate from one another and co-operating with the complementary portions of the jaw for engaging, respectively, angular and round objects, substantially as described.

4. A wrench having a jaw and a rest, each provided with integral separate gripping-surfaces for nuts and pipes, the pipe-gripping surface of the jaw being dentated and having its forward tooth longer than the others, substantially as described.

In testimony whereof I have hereunto set my hand this 1st day of October, A. D. 1891.

DANIEL H. CARPENTER.

Witnesses:

J. H. SHUMWAY,
FRED C. EARLE.