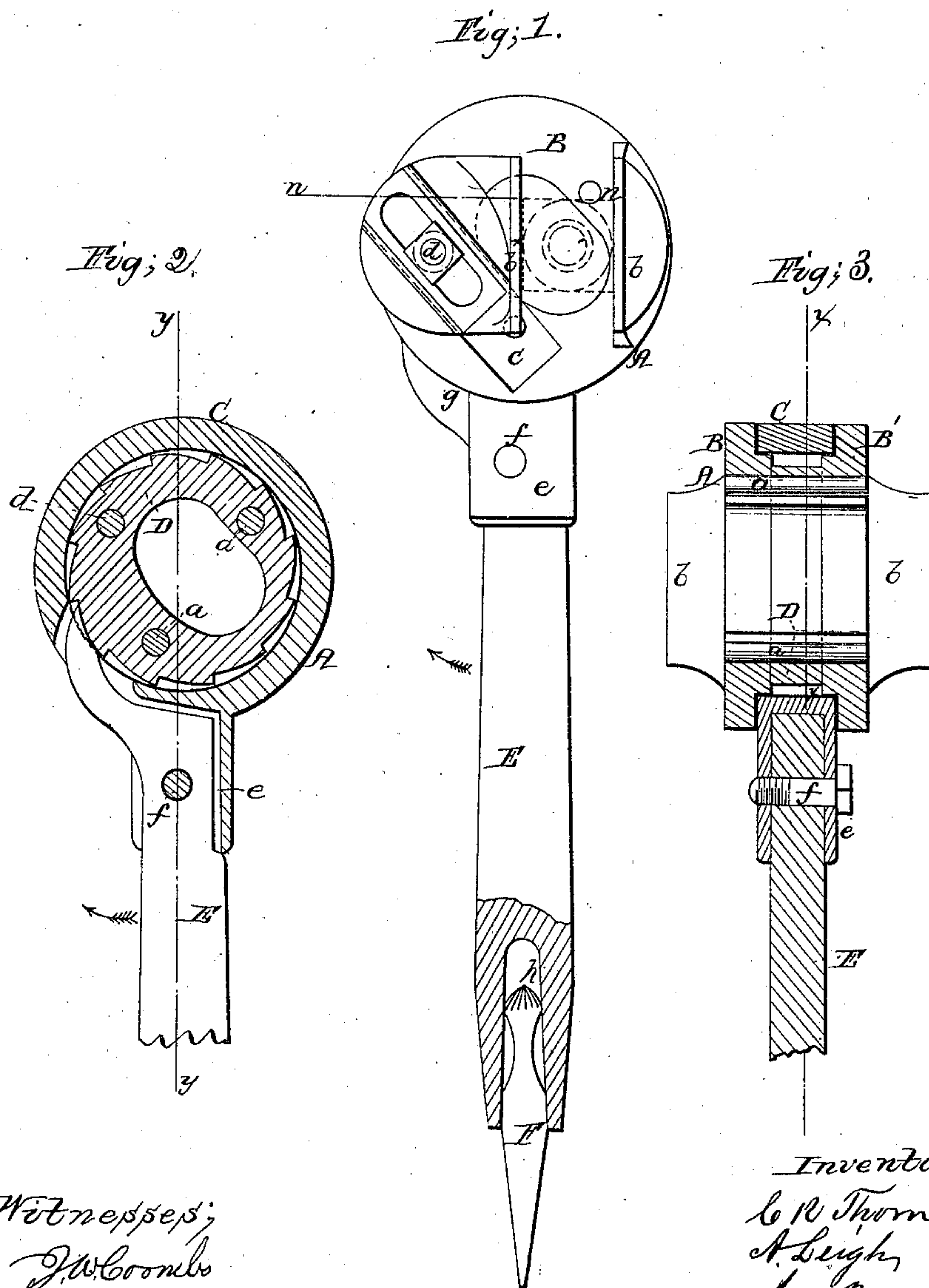


C. R. THORN & A. LEIGH.
WRENCH.

No. 42,239.

Patented Apr. 5, 1864.



Witnesses;
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UNITED STATES PATENT OFFICE.

CHARLES. R. THORN AND ALFRED LEIGH, OF CLINTON STATION, N. J.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. 42,239, dated April 5, 1864.

To all whom it may concern:

Be it known that we, CHARLES R. THORN and ALFRED LEIGH, both of Clinton Station, in the county of Hunterdon and State of New Jersey, have invented a new and Improved Screw-Wrench; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 represents a sectional face view of our invention. Fig. 2 is a longitudinal section of the same, taken in a plane indicated by the line *xx*, Fig. 3. Fig. 3 is a transverse section of the same, the plane of section being indicated by the lines *yy*, Fig. 2.

Similar letters of reference in the three views indicate corresponding parts.

This invention consists in a wrench with a double set of jaws—one for right and the other for left handed work, or one for tightening and the other for unscrewing a nut or screw, in combination with a ratchet-wheel, pawl, and handle, in such a manner that the operation of tightening or unscrewing a nut or screw can be performed with the same wrench and without removing the jaws from said nut or screw until the operation is finished.

It consists, further, in the arrangement of an adjustable jaw moving in an oblique slot or recess, and fastened by a screw in such a manner that the strain exerted on said jaw by the nut or screw, in turning the same in or out, is sustained by the slot or recess, and the screw is almost entirely relieved from said strain, and at the same time the strain exerted on said jaw in turning a nut has a tendency to close the same rather than to open it, and it is therefore not liable to work loose during the operation of turning a nut or screw in or out.

To enable others skilled in the art to make and use our invention, we will proceed to describe it.

A represents the head of our wrench, which is composed of four parts—viz., the two disks B B', the ring C, and the ratchet-wheel D. The disks B B' are connected with the ratchet-wheel D by means of pins *a*, so that they are compelled to turn with the same in either direction, and each of said disks is provided

with two jaws, *b b**. The jaws *b* are cast solid with the disks, or otherwise firmly connected to the same, and the jaws *b** are fitted in oblique recesses *c*, so that by sliding them in said recesses they can be made to approach or move away from the stationary jaws *b*, and by those means can be adjusted to nuts or bolt-heads of different size. A screw, *d*, which passes through slots in the disks B B', serves to fasten both movable jaws simultaneously in the desired position. An oblong hole in the center of the disks B B' and ratchet-wheel D admits the shank of the screw, so that the wrench can be readily applied to a nut of any description, whether the bolt project or not, and that said nut can be screwed down as far as may be desired. The ring C is provided with a socket, *e*, to receive the handle E, which is secured in its place by a screw-pivot, *f*, in such a manner that a short oscillating motion can be imparted to it. Said handle terminates at its upper end in a pawl, *g*, and by throwing the handle in the direction of the arrow marked near it in Figs. 1 and 2, the pawl engages with the teeth of the ratchet-wheel D, causing the same with the disks B B' to rotate in the same direction; but by throwing the handle in the opposite direction the pawl is thrown out of gear with the ratchet-teeth, and the handle and ring C rotate independent of the ratchet-wheel and disks. The outer end of the handle is provided with a socket, *h*, to receive a screw-driver and bit, F, which is so constructed that it can be reversed and that either the screw-driver or bit can be used.

In applying the wrench to a nut, such as shown in Fig. 1 of the drawings in red outlines, the movable jaw is first adjusted to fit said nut, and by turning the wrench in the direction of the arrow marked near the handle the nut is turned down if the thread is right-handed, or turned out when the thread is left-handed.

By means of the ratchet arrangement the nut can be turned in or out to any distance without ever removing the wrench.

This wrench is very simple and cheap in its construction. All its parts can be cast and not much fitting is required in putting them together, and it can be used for nuts or screws of any desired description.

What we claim as new, and desire to secure by Letters Patent, is—

1. The double set of jaws *b b**, applied to the disks *B B'*, in the manner and for the purpose substantially as specified.

2. The disks *B B'*, each provided with a stationary jaw, *b*, and with a movable jaw, *b**, moving in an oblique recess, *c*, in combination with the ratchet-wheel *D*, handle *E*, and

pawl *g*, constructed and operating in the manner and for the purpose substantially as shown and described.

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Witnesses:

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