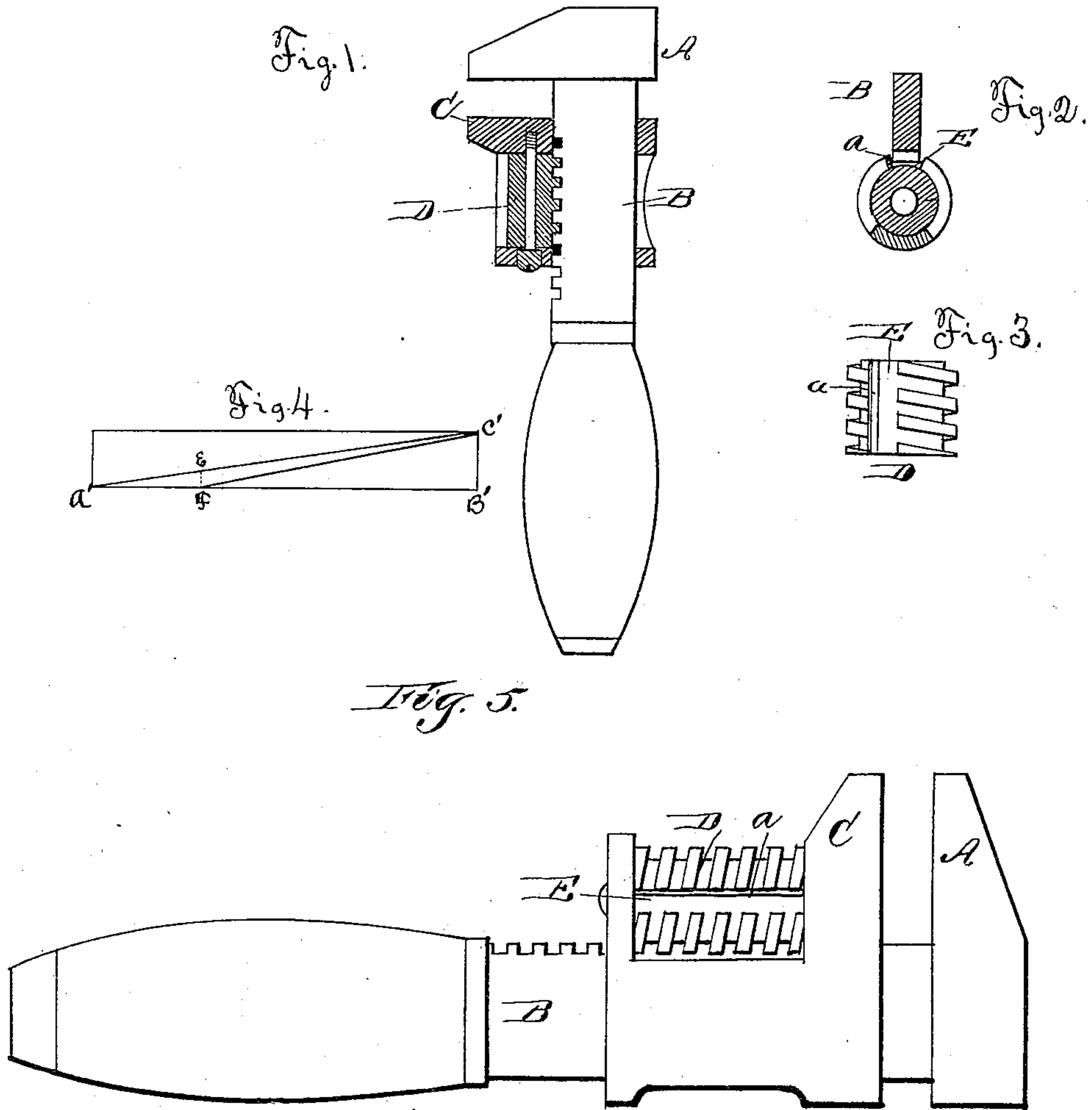


(No Model.)

J. DU SHANE.
WRENCH.

No. 267,505.

Patented Nov. 14, 1882.



Witnesses:
E. B. Korne.
Willis A. Bugbee.

Inventor,
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att'y

UNITED STATES PATENT OFFICE.

JAMES DU SHANE, OF SOUTH BEND, INDIANA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 267,505, dated November 14, 1882.

Application filed May 10, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES DU SHANE, of South Bend, in the county of St. Joseph and State of Indiana, have invented a new and useful Improvement in Wrenches, which improvement is fully set out in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of the wrench and its parts, showing the thread of the adjusting-cylinder engaged with the teeth of the rack-bar. Fig. 2 is a cross-section of the rack-bar and adjusting-screw, showing the threads of the cylinder disengaged. Fig. 3 is a view of the adjusting-cylinder, showing the discontinuousness of the threads, or that if they were extended across the blank space E they would not be continuous. Fig. 4 is a diagram representing the circumference of the cylinder flattened out. Fig. 5 is a side view of a wrench, showing my improvements.

This invention relates to nut-wrenches which are provided with adjustable jaws, rack-bars, and screw-threaded cylinders for adjusting the jaws; and the nature of my invention consists in a novel construction of a screw-threaded cylinder in combination with a movable jaw, a fixed jaw, and a rack-bar, whereby the movable jaw can be quickly adjusted and set at any desired distance from the fixed jaw, according to the size of the nut to be turned, as will be understood from the following description when taken in connection with the annexed drawings.

The letter A designates a fixed jaw, which is rigid on a rack-bar, B, having a handle applied to it, and C designates a movable jaw, which is hollow, and which slides on the rack-bar B. Between the right-angular extensions is a screw-threaded cylinder, D, which is allowed to turn about its longitudinal axis, and which is arranged parallel to the toothed edge of the rack-bar, so that the threads of the cylinder D may be caused to engage with the rack-teeth. A stop, *a*, of suitable construction, may be fixed at the end of thread *c*, to prevent the cylinder from turning too far. The threads are only formed

part way around the cylinder D, thus leaving a free space, E. When this space is turned or adjusted directly over the teeth of the rack-bar B the movable jaw is allowed to slide freely on the rack-bar and to be adjusted to fit any sized nut, after which the screw-cylinder is turned about its axis, which will cause its threads to engage with the teeth of the rack-bar B.

The construction and operation of screw-threaded cylinder D is as follows:

I shall now refer to the diagram marked Fig. 4. The cylinder D is not simply a screw with part of the threads cut away. In this figure A' B' represents the circumference of the cylinder D, straightened or flattened out. A' C' represents the thread, and B' C' the amount of "lead" the thread would have in passing once around the cylinder if this cylinder were a perfect screw; but as I have no thread on part of the screw-cylinder, I would lose a portion of the lead by cutting it away, and the cylinder, if it were a perfect screw, would not be suitably adjustable. Now, to make up for this loss and to render the cylinder universally adjustable, I formed the thread from F to C', so that the partial thread shall have the same amount of lead as it would have had it passed continuously round the cylinder.

It is obvious that I can give the partial thread more or less lead, as I may desire.

Having described my invention, I claim—

In a nut-wrench, a cylinder partly about the circumference of which are threads having a pitch greater than any stated pitch of a continuously screw-threaded cylinder of the semi-diameter, in combination with the movable and the stationary jaw and the rack-bar, whereby one revolution of the broken-threaded cylinder will throw the movable jaw as far or farther than the completely-threaded cylinder, substantially in the manner and for the purposes described.

JAMES DU SHANE.

Witnesses:

ANDREW ANDERSON,
GEO. W. MATTHEWS.