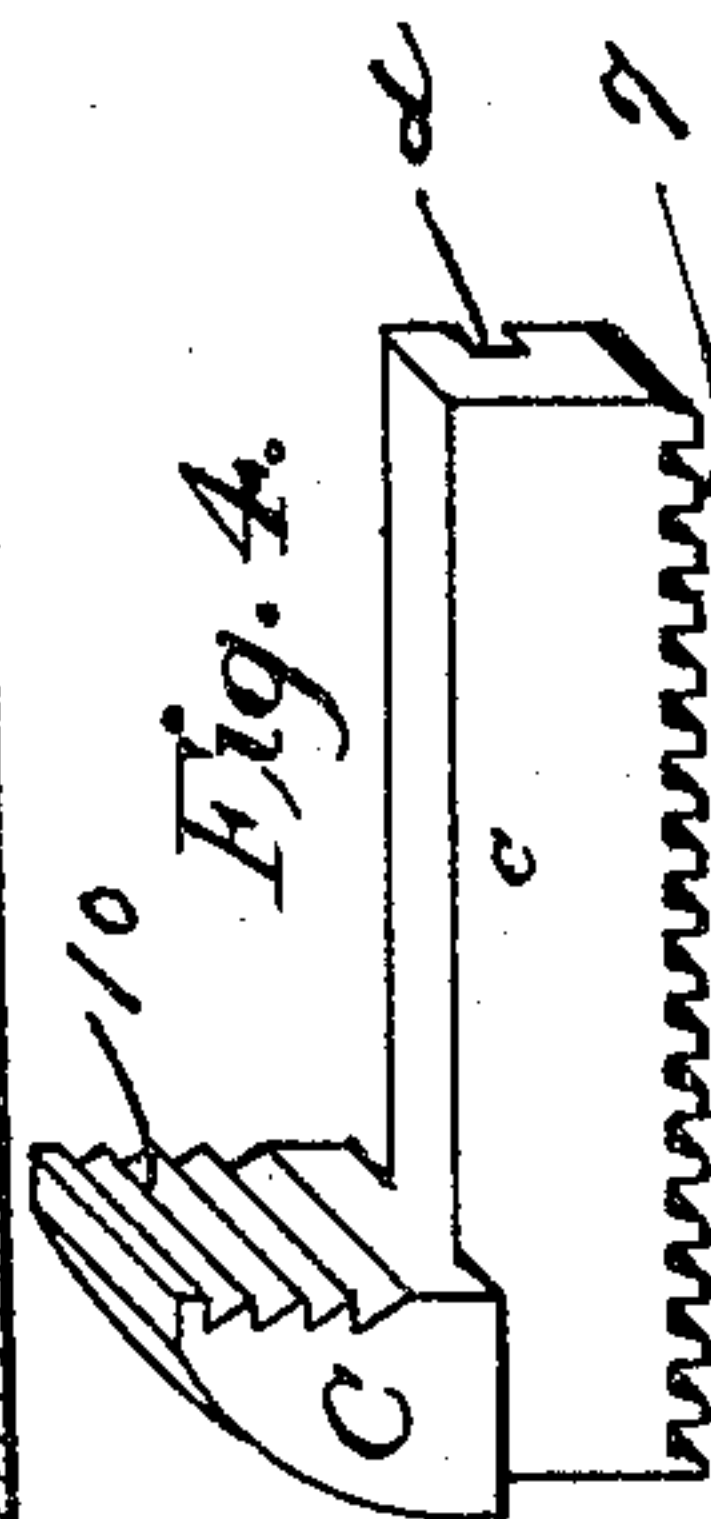
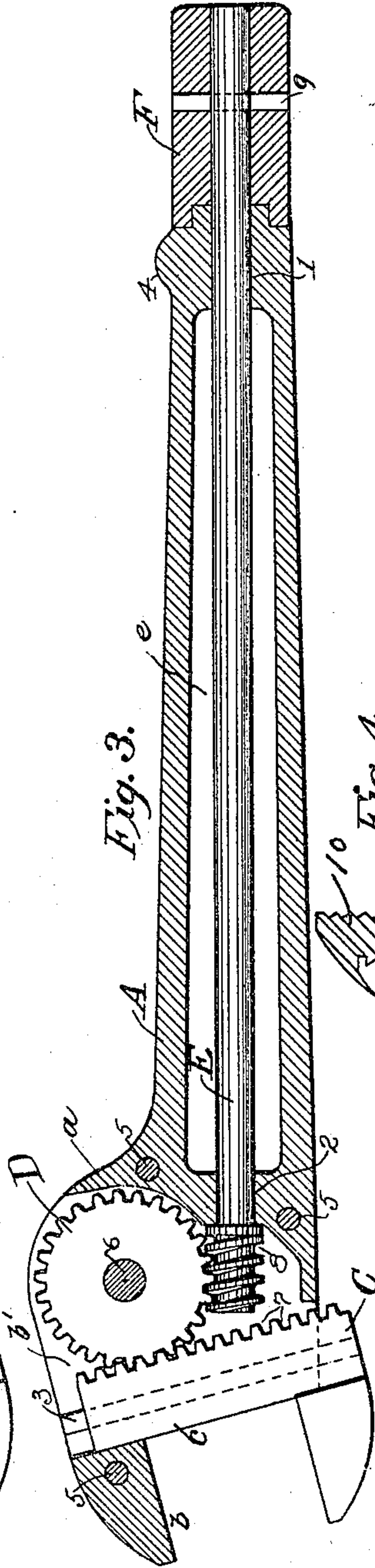
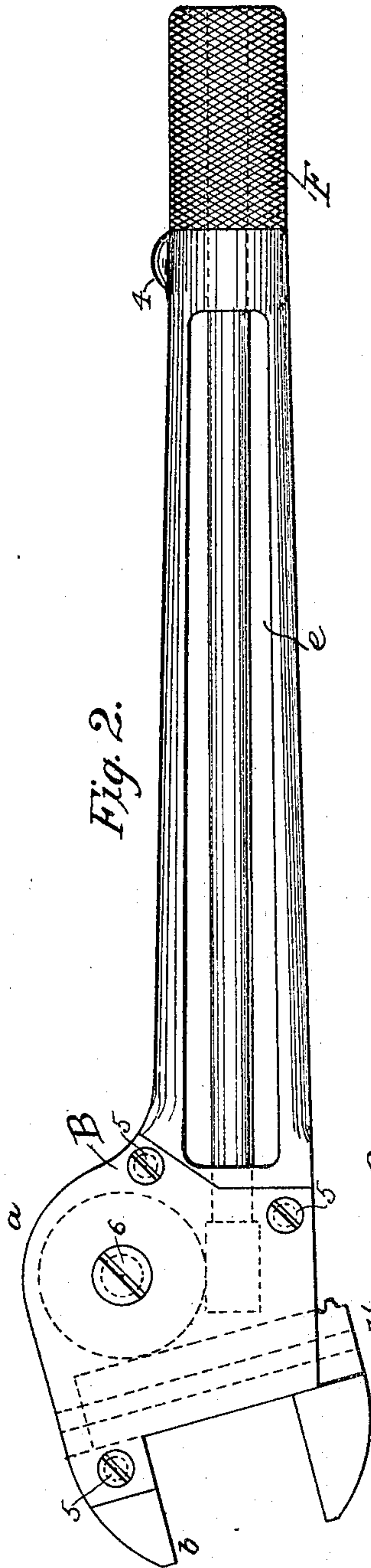
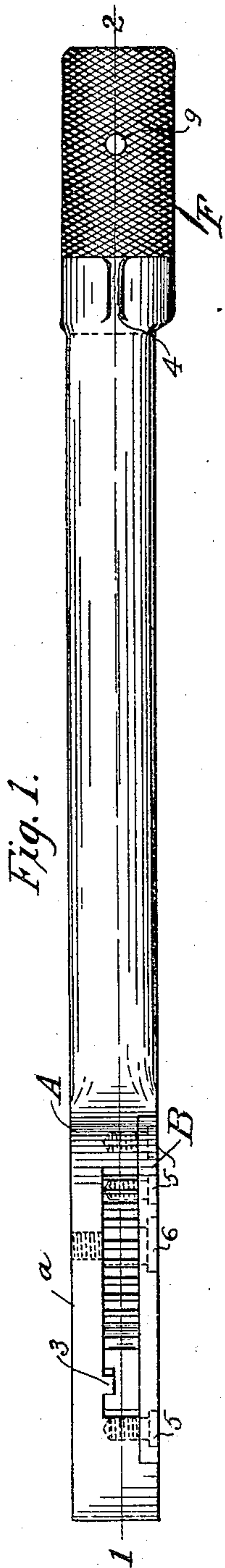


No. 784,243.

PATENTED MAR. 7, 1905.

W. WHALEY.
WRENCH.

APPLICATION FILED MAY 28, 1904.



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UNITED STATES PATENT OFFICE.

WILLIAM WHALEY, OF LAFOLLETTE, TENNESSEE, ASSIGNOR OF ONE-HALF TO HAYWOOD S. WINKLER, OF LAFOLLETTE, TENNESSEE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 784,243, dated March 7, 1905.

Application filed May 28, 1904. Serial No. 210,250.

To all whom it may concern:

Be it known that I, WILLIAM WHALEY, a citizen of the United States, residing at Lafollette, in the county of Campbell and State of Tennessee, have invented new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to wrenches, and has for its object a combined nut and pipe wrench, together with a novel sliding adjustment.

A further object is to provide a jaw construction which will permit the use of the wrench in close places.

Improved details in the construction of the various parts of the invention will be apparent from detailed the description hereinafter and the appended claim, when read in connection with the accompanying drawings, forming part thereof, in which—

Figure 1 is an edge view, and Fig. 2 a side view, of the wrench. Fig. 3 is a longitudinal section. Fig. 4 is a perspective view of the sliding jaw.

Referring specifically to the drawings, A denotes the handle of the wrench having at its outer end a head *a*, from which the fixed jaw *b* projects. The head is recessed, as at *b'*, to receive the sliding jaw and the parts to operate the same. The jaws extend at an acute angle to the longitudinal axis of the handle, which enables the wrench to be used in close places.

The sliding jaw is indicated at C, having a shank *c*, provided with a rack 7, which is in mesh with a pinion D. Said pinion is rotatable on a pin 6, which is fastened in the head and in a cover-plate B over the recess. The handle is open, as at *e*, and the solid portions of the handle are bored, as at 1 and 2, respectively, to receive a shaft or spindle E, which has at its outer end a worm 8, which is in mesh with the pinion D. The opposite end of the shaft extends to the outside of the handle and carries a knurled finger-piece F, which is fastened by a pin 9 or otherwise. The finger-piece affords convenient means for rotating the shaft, whereby the sliding jaw is adjusted through the gearing above described. This

construction permits the jaw to be closed quickly and tightly on an object, and it can also be readily released.

The sliding jaw has on its under side a groove *d* and the head has a rib 3, which fits in the groove. These parts guide the movement of the jaw. The jaw can be removed and replaced by the one shown in Fig. 4, which has a toothed or serrated face 10 to enable the wrench to operate on a pipe or other round object. The jaw-shank and the working parts are covered by the plate B, heretofore described, said plate being fastened to the head by screws 5.

In using a wrench to draw a nut very tight or to loosen it it is often the practice to strike the wrench with a hammer, and in order to permit this being done without injury to the wrench I form a projection or knob 4 on the handle at the end thereof adjacent to the finger-piece F. This knob may be struck without danger of injury to the wrench. The handle will have the word "strike" stamped therein just in front of the knob.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A wrench comprising a handle having at its outer end a recessed head, a fixed jaw extending therefrom, at an acute angle to the handle; a cover-plate over said recess; a pin fastened in the head and cover-plate and carrying a pinion; a sliding jaw working in the recess and having a rack in mesh with the pinion; a worm-shaft journaled in the handle and meshing with the pinion, said shaft extending to the outside from the handle and carrying a finger-piece for rotating it; and a knob on the handle at the end thereof adjacent to the finger-piece.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM WHALEY.

Witnesses:

J. E. GREEN,
W. T. FRICK.