E. D. BARRETT.

Pipe-Wrench or Tongs.

No. 197,756. Patented Dec. 4, 1877.

Fig. 1.

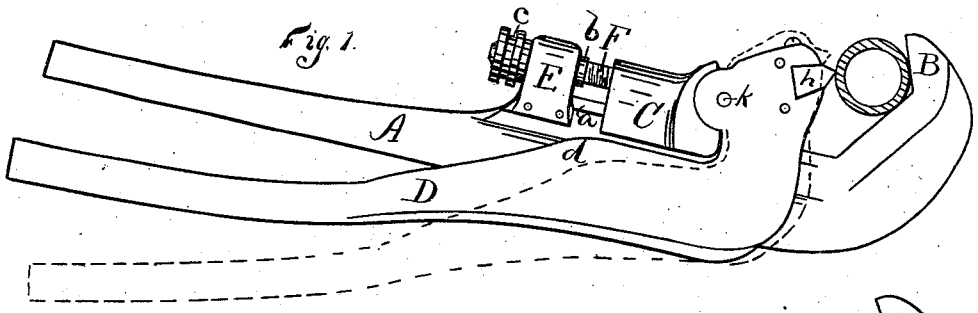


Fig. 2.

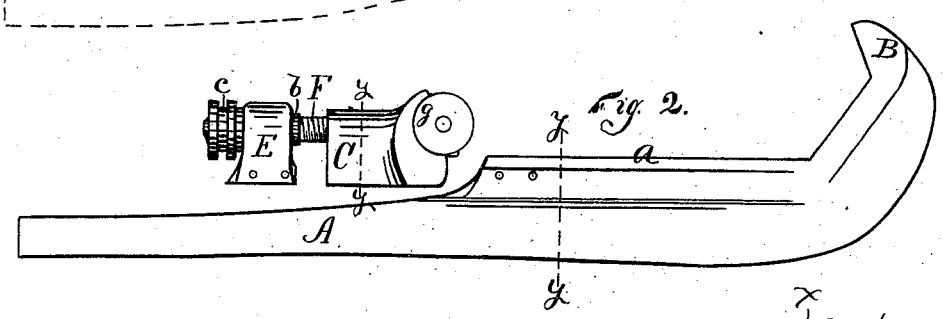


Fig. 3.

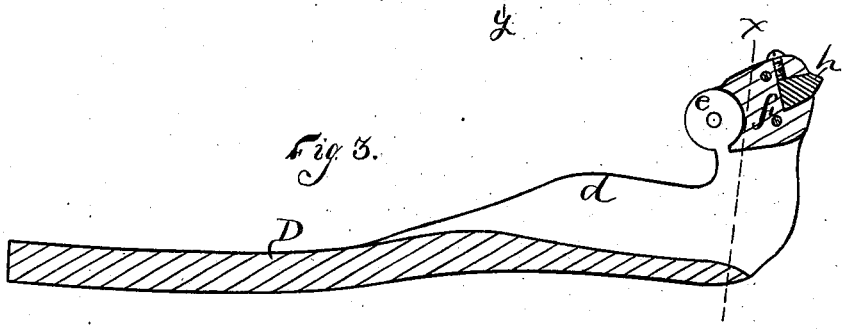


Fig. 4.

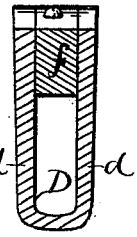
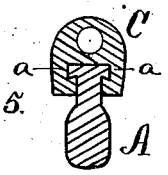


Fig. 5.



Witnesses
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By James Shepard Atty.

UNITED STATES PATENT OFFICE.

EDWARD D. BARRETT, OF SOUTHINGTON, CONNECTICUT, ASSIGNOR OF ONE-HALF HIS RIGHT TO J. B. SAVAGE, OF SAME PLACE.

IMPROVEMENT IN PIPE WRENCH OR TONGS.

Specification forming part of Letters Patent No. **197,756**, dated December 4, 1877; application filed July 18, 1877.

To all whom it may concern:

Be it known that I, EDWARD D. BARRETT, of Southington, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Pipe Wrenches or Tongs, of which the following is a specification:

My invention has for its objects superior strength, compact form, cheapness of construction, and convenience of manipulation; and it consists in the peculiar construction of the same, and in the combination of parts, as hereinafter described.

In the accompanying drawing, Figure 1 is a side elevation of a pipe wrench or tongs which embodies my invention. Fig. 2 is a side elevation of detached parts of the same. Fig. 4 is a transverse section of the part shown in Fig. 3, taken on line *x x*, and Fig 5 is a transverse section of the parts shown in Fig. 2, taken on lines *y y*.

A designates the bar, provided with the usual hooked outer end or head B, said bar being shown separately in Fig. 2. The sides of this bar between its head and handle end are longitudinally grooved or recessed, above which grooves are laterally-projecting ribs or ways *a a*, the under sides of which are dovetailed or hooked under, as shown in Fig. 5. The sides of this bar are grooved for the purpose of forming the ribs or ways *a a* without having them project laterally beyond the sides of the bar proper, all as shown in Fig. 5. A sliding block, C, is fitted to slide freely upon the ways *a a*, said block being shaped in cross-section to correspond to that of the bar and ways, as shown in Fig. 5; and to this sliding block the lever D is hinged by means of a knuckle-joint, so that the circular edges of the knuckles fit each other and relieve the pintle *k* of severe strain.

A lug, E, is fitted upon the bar by engagement with said ways, and pinned in place at their outer ends, as shown in Fig. 1. A screw, F passes through said lug and into a threaded hole in the sliding block C, said screw being secured from longitudinal movement by means of a collar, *b*, on the inside of said lug, and a knurled head, *c*, on the outside of said lug, whereby the turning of the screw will move the block C on its ways. Putting the knurled head of the screw on the outside of the lug brings it into the most convenient position for use in a pipe wrench or tongs. The base of the sliding block which hooks over and engages the under side of the ways extends inward to a point directly under the center of the knuckle-joint, so as to firmly support it from all upward or lifting strain.

In order to accommodate a block whose base thus extends inward, and for the purpose of extra strength and compactness, the bar D is of a peculiar form, to wit, with two distinct arms standing nearly at right angles to each other, the longer arm extending along by the sides of the bar A, and the shorter transverse arm crossing it, as shown in Fig. 1. The shorter transverse arm is wholly forward or inside (except the knuckles of the joint) of the center of motion, thereby making room for the base of the sliding block before described. This lever surrounds or partially incloses the bar A, which passes through it not only at the transverse short arm, but, for a portion of the long arm, flanges *d d* extend upward each side of the bar, giving the lever great strength, without making it project far beyond the bar A, the two flanges *d d* being connected at the bottom in one solid piece of metal, making the lever in transverse section substantially in U-form.

The transverse arm of the lever D is formed merely by making the flanges *d d* extend farther up at the ends, and two knuckles, *e e*, of the joint are formed on said flanges. Between these flanges *d d* at their upper ends is a block, *f*, firmly riveted in place, and the side of said block which comes opposite the part or knuckle *g*, Fig. 2, of the joint is made in circular form, to fit the circular edge of said knuckle *g*. When this end of the lever D is thus completed, the ordinary knife or chisel jaw *h* may be secured therein in any proper manner.

The device is adjusted to gripe different sizes of pipes or rods by means of the screw F changing the position of the sliding block on the bar A. The lever D turns on the pintle *k*, Fig. 1, to grasp and release the pipe or rod in the ordinary manner, but with superior strength, by reason of the knuckle-joint relieving the pin of the severe strain, the compact and yet strong

form of the longitudinally-recessed lever and the joint being directly connected to the bar at a point just under its center of motion.

By making the lever with the flanges extending upward far enough to form the transverse arm, and then fitting the block between its two ends, the lever may easily and cheaply be forged in dies, and the circular recessed edge of the block which works against the edge of knuckle *g* can be much more easily formed and finished when separate than it could be if the lever was all formed of one piece.

By making the under side of the ways hooked or dovetailed under, as shown, there is no tendency to spread out the sides of the sliding block, as there would be in a like-formed block open at the base and fitted on ways without such hooked under sides.

If desired, a flat-faced jaw, instead of the chisel-faced jaw *h*, may be placed in end of lever D, when the tool is converted into a powerful wrench for griping nuts or bolt-heads to turn them.

I claim as my invention—

1. The combination, in a pipe-wrench, of the following instrumentalities, viz., first, the bar A B, provided with longitudinal depressions in its sides, and the ways *a a* above said depressions running parallel to the main direction of said bar; second, the lever D, having flanges *d d* crossing the bar A, one on each side, at a point wholly forward of the pintle *k*, and provided with the knuckles *e e* formed on the said flanges; third, the sliding block C, provided with knuckle *g* and hung to the knuckles of the lever D; also provided with a female screw-thread and fitted to slide on the ways *a a* of the bar A; fourth, the lug E, also fitted to said ways *a a* and secured from longitudinal movement thereon; and fifth, the screw F passing through the lug E, in which it is secured so as to revolve but not move longitudinally, and with its opposite end engaging the female thread in the sliding block C, substantially as described, and for the purpose specified.

2. In a pipe-wrench, the lever D, provided with longitudinal flanges *d d*, making part of the lever U-shaped, and extending upward at the end of said U-shaped portion to form the short cross-arm of said lever and the two knuckles *e e*, in combination with the block *f*, secured between the ends of said flanges and provided with the circular depression on the side, which matches the knuckle *g* of the block, to which the lever is hung, substantially as described, and for the purpose specified.

3. In a pipe-wrench, the longitudinal ways *a a* on bar B, provided with dovetailed under sides, substantially as described, and for the purpose specified.

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Witnesses:
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