

No. 655,312.

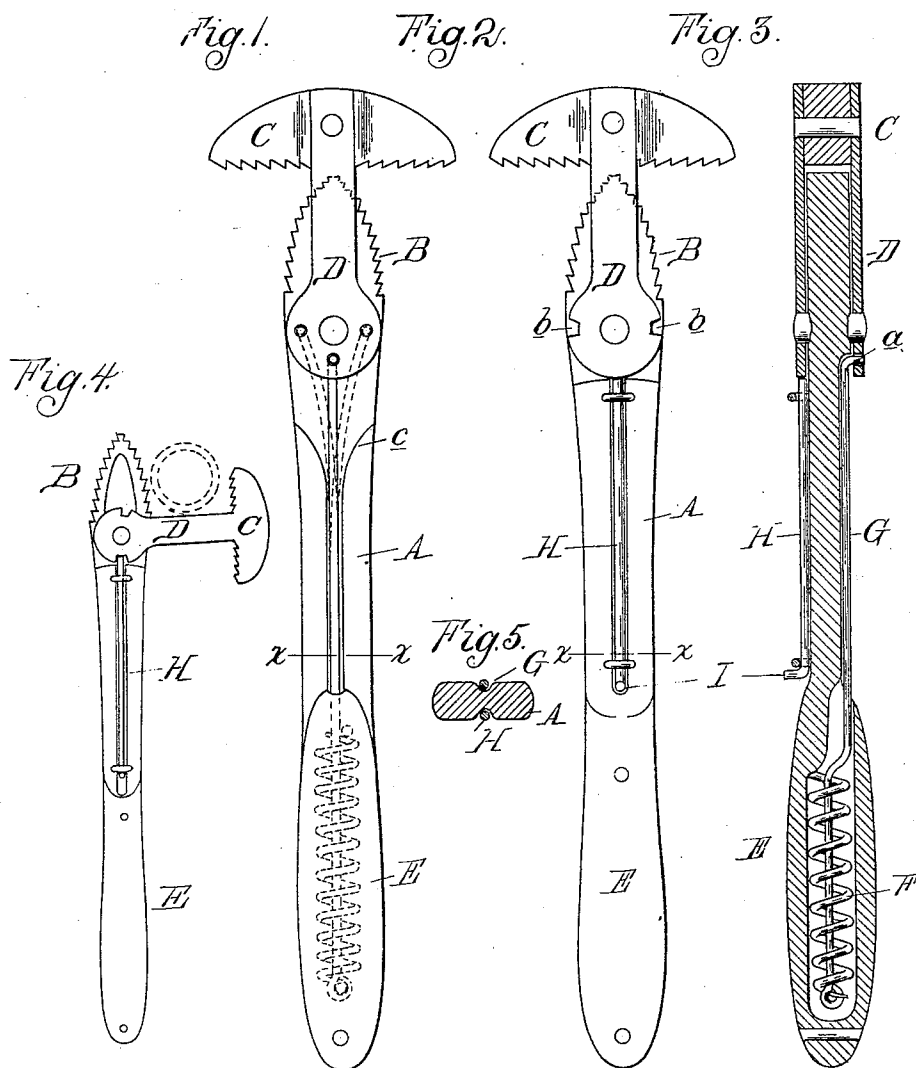
Patented Aug. 7, 1900.

T. E. SMYTHE.

WRENCH.

(Application filed Dec. 23, 1899.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 655,312, dated August 7, 1900.

Application filed December 23, 1899. Serial No. 741,380. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. SMYTHE, a citizen of the United States of America, residing at Galion, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates more specifically to pipe-wrenches; and the object is to make the hinged jaw self-adjusting to the work, whereby the wrench may be operated with one hand as well as with both hands.

To this end the invention consists in combining with the hinged jaw a tension device operating to make the jaw self-closing and a detent for holding it open, all as more fully hereinafter described and shown in the accompanying drawings, in which—

Figures 1 and 2 are elevations of the opposite sides of the wrench, respectively. Fig. 3 is a central longitudinal cross-section. Fig. 4 is a diagrammatic elevation with the hinged jaw held open; and Fig. 5 is a cross-section on line *x x*, Figs. 1 and 2.

My invention is shown as applied to a wrench of known construction, in which A is the lever-bar; B, the serrated head formed thereon; C, the serrated jaw, and D the shanks thereof by means of which it is pivotally secured to the lever-bar. In applying my invention to this wrench I construct the lever-bar with a hollow handle E, suitable to receive a coil-spring F, to which a tension-rod G is connected. This tension-rod I hook or pivotally connect otherwise to the inner end of one of the shanks, as shown at *a*, in such manner that by the tension of the spring the jaw assumes normally the position shown in Figs. 1 and 2—that is, with the shanks extended in line with the lever-bar or head thereof. The other shank is formed with a rounded inner end, in which are cut two notches *b*, and upon the corresponding side of the lever-bar I secure the sliding rod or detent H, the inner end of which terminates adjacent to the handle in a suitable finger-piece I, by means of which it may be pushed or pulled endwise. I preferably guide the detent H in a groove formed in the side of the lever-bar, and a like groove I form in the opposite side thereof for

guiding the tension-rod G. This latter groove I preferably form with flaring sides *c*, as shown.

In practice my wrench as constructed may be operated in the same manner as it would be without the additional parts described. In connection with the latter it is intended to operate as follows: Before engaging the wrench with the work the jaw C is turned upon its pivot either to the right or left, according to which side it is wanted on, until the detent is opposite one of the notches *b*. Then the detent is pushed into engagement with the notch, as shown in Fig. 4, to hold it from closing against the tension of the spring F. In this position of the parts the jaw is open to its largest capacity for taking in work, and after engaging it with the work the detent is drawn back out of engagement with the notch, when the jaw will close up to the work and grip it, and with each new grip in turning the spring F, which is under strong tension, will cause it to take a new grip and hold it to its work without interfering with turning it or releasing it from the work.

The advantage of my pipe-wrench will be readily understood by the mechanic, who has often work to accomplish where it is difficult or impossible for him to hold the jaw up to its work with the hand. At the same time he can manipulate it with both hands, if he wants to.

While the tension-spring and detent do co-operate together, either one would be capable of fulfilling a function without the other. Thus the use of the detent without the tension-spring would have the useful function of holding the jaw at the position where the working limit of capacity of the wrench is reached. The tension-spring, on the other hand, without the detent will hold the jaw up to the work no matter whether the jaw is on the right or left.

What I claim as my invention is—

1. In a wrench, composed of a lever-bar and jaw pivoted thereto, a tension device applied to the jaw to make it self-closing and a detent adapted to be engaged with the jaw at the will of the operator to hold it open.

2. In a wrench, composed of a lever-bar and jaw pivoted thereto, a tension device applied to the jaw making it self-closing in combina-

tion with a detent adapted to be engaged with the jaw to hold it open at the point of greatest distention.

3. In a wrench, composed of a lever-bar and jaw pivoted thereto, a tension device applied to the jaw making it self-closing and a detent adapted to cooperate therewith by being engaged with the jaw to hold it open against the operation of the tension device, said detent having a finger-piece for operating it in proximity to the hand of the operator on the lever-bar.

4. In a wrench, the combination of the lever-bar A, the head B thereof, the jaw C pivotally secured to the lever-bar, the shanks D of the jaw, the tension-rod G connected to the inner end of one of the shanks, the groove in the lever-bar in which said tension-rod is partially concealed and guided in its movements and the tension-spring F inclosed in the handle of the lever-bar and to which the tension-rod is directly connected.

5. In a wrench, the combination of the lever-bar A, the head B thereof, the jaw C pivotally secured to the lever-bar, the shanks D of the jaw, the tension-rod G connected to the inner end of one of the shanks, the tension-spring F inclosed in the handle of the lever-

bar, the detent H and the notches *b* in the shank on opposite sides of the pivot. 30

6. In a wrench the combination with the lever A and self-closing jaw C of the detent H slidably secured in a groove of the lever-bar and the notches *b* in one of the shanks into which the detent is adapted to be engaged to prevent the jaw from closing. 35

7. In a wrench, the combination with the lever-bar A and jaw C having the shanks D pivoted on opposite sides of the lever-bar of two longitudinal grooves formed in opposite sides of said lever-bar, and two rods slidably engaging in said grooves, one of said rods adapted to be engaged with notches in the inner end of one of the shanks to hold the jaw open and the other rod connected to the inner end of the other jaw and to a spring in the handle of the lever-bar and operating by its tension to close the jaw when released by the other rod. 40 45

In testimony whereof I affix my signature 50 in presence of two witnesses.

THOMAS E. SMYTHE.

Witnesses:

CHAS. FERRALL,

FRANCIS CHRISTMAN.