

(No Model.)

F. ARMSTRONG & N. W. VANDEGRIFT.
WRENCH.

No. 335,986.

Patented Feb. 9, 1886.

Fig. 1.

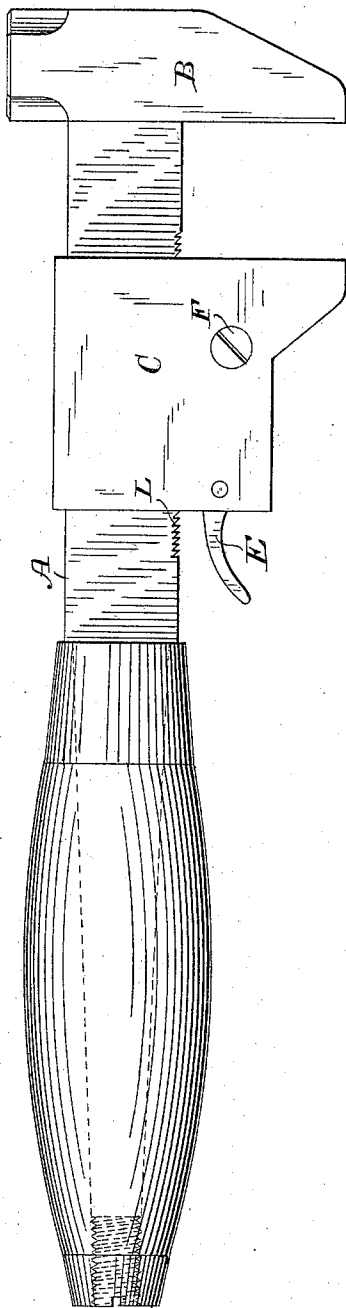
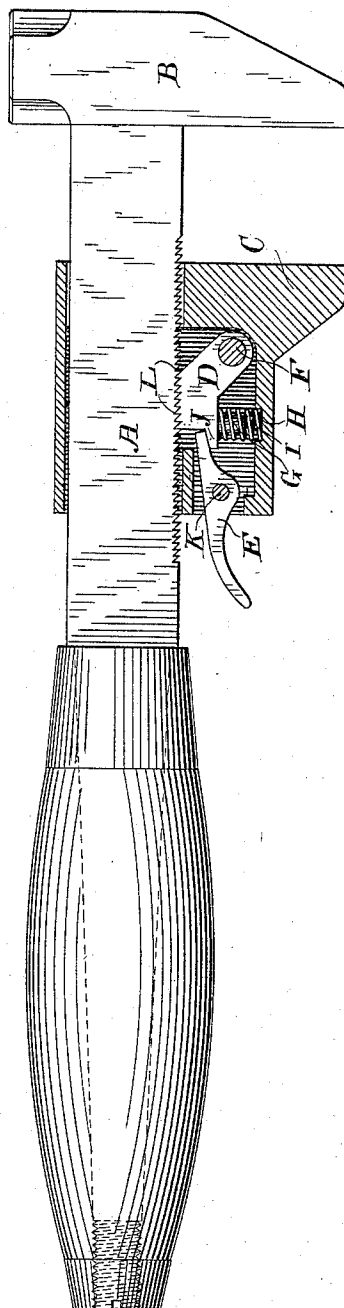


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

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CONNECTICUT; SAID VANDEGRIFT ASSIGNOR TO SAID ARMSTRONG.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 335,986, dated February 9, 1886.

Application filed June 24, 1885. Serial No. 160,612. (No model.)

To all whom it may concern:

Be it known that we, FRANK ARMSTRONG and NATHANIEL W. VANDEGRIFT, citizens of the United States, residing at Bridgeport, Connecticut, have invented new and useful Improvements in Wrenches, of which the following is a specification.

Our invention relates to that class of wrenches which have one stationary and one movable jaw, and particularly to the means employed for shifting and retaining the movable jaw in position.

Prior to our invention a large number of devices for accomplishing the shifting and retaining of the movable jaw have been suggested, among which may be mentioned the arrangement of a serrated cam pivoted upon the movable jaw and bearing against the bar upon which the said bar slides, and provided with an operating-lever projecting out to a convenient point for grasping, in order to be moved to operate the cam. This device possesses a great disadvantage, in being liable to become wedged when too much strain is put upon the jaws, rendering it difficult to free the cam from its wedged position. Another distinctive class of devices for operating the movable jaw is shown in the patent to F. Armstrong, No. 274,544. In this two operating means must necessarily be employed—one for moving the jaw up firmly against the work, and the other for releasing a serrated plate which bears against a similarly-serrated face of the bar of the wrench.

Our invention has for its objects to provide a means for locking the movable jaw in place and readily releasing the same, which shall be simple in construction and readily operated, and which shall at the same time be durable, not liable to get out of order, readily renewed, and which shall hold the jaw positively and accurately at any given point to which it may be moved; and with these ends in view our invention consists of a wrench having an ordinary stationary jaw and shank, with a movable jaw adapted to reciprocate upon the shank of the stationary jaw, and provided with a recess, in which is arranged a spring-toggle clamping block or lever and releasing-latch, in such manner that the strain exerted by the use of the wrench shall be in a

line resulting from the resolution of forces, or coincident with a plane passing through the strongest portions of the wrench, and whereby also the movable jaw is protected against any backward or loosening movement while the wrench is in use.

Our invention consists, further, in the details of construction for carrying out the generic principles of operation, as will be hereinafter fully explained.

The clamping-block D, as will be observed, is angular in form, the serrated arm being obtuse to the pivoted portion, so that the reacting strain exerted by the contact of the serrations on the arm and the shank A will always be in radial lines passing through the center of the clamp-pivot, and thus tend to hold said clamp to its proper working position.

In order that the construction and arrangement of our improvement may be clearly understood, and others skilled in the art enabled to make wrenches embodying them, we will now proceed to describe the same in connection with the accompanying drawings, in which—

Figure 1 is a side view of a wrench embodying our improvements. Fig. 2 is a similar view with the side of the sliding jaw broken away to show the interior disposition of parts.

In these drawings, A represents the shank of the wrench, and B represents the stationary jaw, which is secured to or formed with the said shank.

C represents the movable jaw, which has an opening for the passage of the rod or shank A, upon which it is designed to slide back and forth to increase or diminish the size of the opening which receives the work. The sliding jaw C is hollowed out, as shown, to form a chamber, in which the mechanism for holding the same in place is assembled.

As a convenient means of securing the jaw against backward movement upon the bar A when a strain having a tendency to effect this is exerted, we provide the surface of the bar which is adjacent to the chamber in the hollow jaw with a series of serrations extending a distance equal to that traveled by the jaw in changing its positions. These serrations are curved on their edges which face the handle, and are straight on their other face, so

that anything which is designed to engage with them may freely slide over them toward the stationary jaw, but movement in a reverse direction will be prevented by coming in contact with the square edges.

D represents a toggle block or lever, which is pivoted within the chamber in the sliding jaw at the forward end thereof, and its lower face is provided with teeth, which engage with those on the bar A. The corner of the chamber in which the toggle is pivoted is rounded, and the end of the said toggle which bears against the inner face of the jaw is similarly rounded, so that the toggle may be turned to any position desired and still the bearing against the face of the jaw be preserved in order that no strain be brought upon the pin upon which the toggle is pivoted. Upon a ledge formed upon the lever is a pin, H, around which is placed a coil-spring, G, the upper end of which rests in a countersink, I, in the upper wall of the jaw. This spring continuously presses down upon the lever and keeps it in engagement with the teeth upon the bar until raised free thereof. The preferred means of accomplishing this raising is the lever E, which is mounted upon a pin, K, passing through the shell of the jaw. The rear end of the lever projects out from the jaw a convenient distance to afford a ready means of grasping when it is desired to release the stop, and the forward end rests under a lip, J, on the rear end of the lever D.

In assembling the parts the recessed jaw is taken before being put upon the rod A, and the holes necessary for the reception of the screw F and K are drilled. Next the toggle D is placed within the chamber with its end bearing against the rounded portion provided for its reception, and the screw upon which it vibrates is placed in position. The opening in the toggle is slightly greater than is actually required for the accommodation of the pin, so that enough play will be allowed to insure the contact between the toggle and the inner face of the jaw. After the toggle is placed in its appropriate position the spring is mounted upon the pin on the toggle and its upper end placed in a seat formed in the recess of the jaw, as clearly illustrated. Finally, the lever E is placed in position with its forward end under the nose J on the stop, and secured in that position by inserting the pin K, upon which it vibrates. These parts being all in place the stop D is held up by depressing the lever E, and the jaw is slid upon the rod to its proper position. When this has been done

the lever E is released and the catch allowed to drop into contact with the serrations on the bar, after which the tool is ready for use.

The clamping-block is so arranged and so shaped that the strain exerted against the operating face of the movable jaw will be directed toward the solid shank of the stationary jaw in an oblique line through the center of the pivot of the clamping-block, thus relieving said pivot from any undue strain or friction, and enabling the operating-latch lever to be operated with the minimum amount of force. It will also be observed that the construction and arrangement of the toggle-block and latch-lever are such that the spring employed for forcing the former into its locking position also maintains the latter in the proper position to make it instantly effective for releasing the toggle-block when desired. The latch-lever it will be observed is in such position that it may readily be reached by the operator, so that the wrench can be operated with one hand. It will also be seen that the several parts of my improved wrench are so constructed and assembled that they may all be made by the simplest mechanical methods, and that they are readily placed in position, and in the event of it becoming necessary to substitute a new piece, at any time for any reason, that such part or parts are interchangeable and adapted to be placed in position with the exercise of little or no expert mechanical knowledge and with great celerity.

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

1. The stationary jaw B and shank A, constructed as described, in combination with the movable jaw C, recessed as shown, and the angular clamping-block D, pivoted at one end and held in position by a suitable spring, and adapted to be released by a latch-lever, E, substantially as hereinbefore set forth.

2. The clamping-block D, pivoted at one end within the jaw C, as shown, and provided at the opposite end with a shoulder or projection, in combination with a rocking latch-lever, E, and suitable spring, G, substantially as and for the purpose set forth.

In testimony whereof we have hereunto set our hands and seals in the presence of two subscribing witnesses.

FRANK ARMSTRONG. [L. S.]
NATHANIEL W. VANDEGRIFT. [L. S.]

Witnesses:

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P. L. HOLZER.