(No Model.)

J. H. POLLARD.

STUD WRENCH.

No. 282,768. Patented Aug. 7, 1883.

Fig. 1.

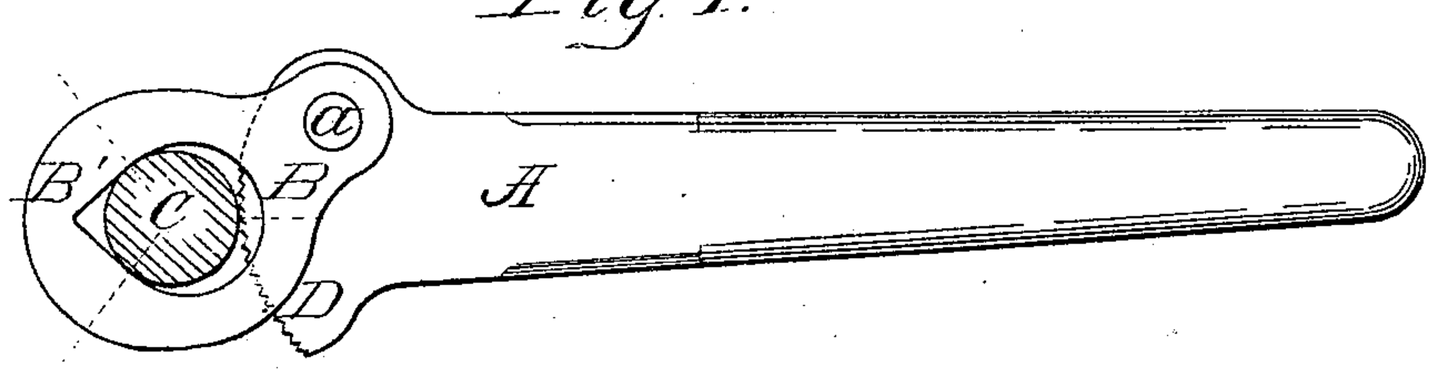
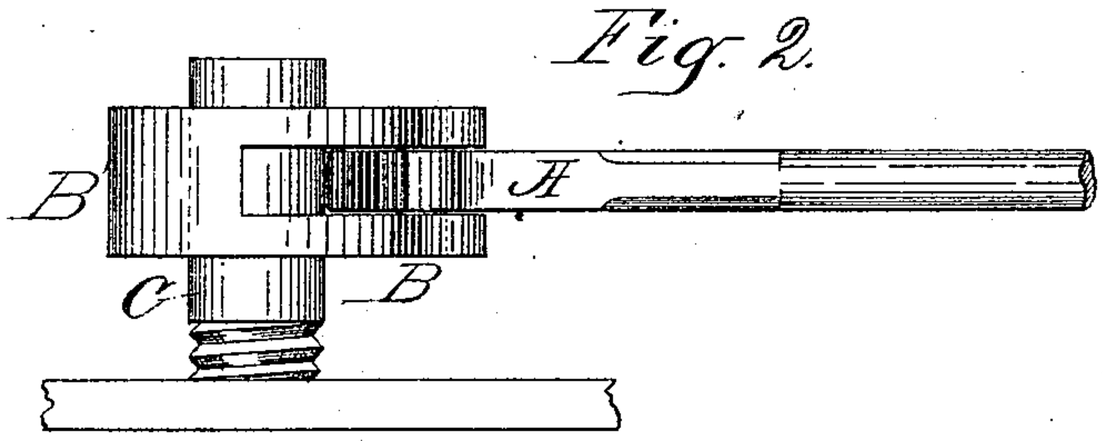


Fig. 2.



Witnesses
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Frank A. Clark

Inventor
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By J. M. St. John
His Atty.

UNITED STATES PATENT OFFICE.

JOHN H. POLLARD, OF CEDAR RAPIDS, IOWA.

STUD-WRENCH.

SPECIFICATION forming part of Letters Patent No. 282,768, dated August 7, 1883.

Application filed March 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. POLLARD, of Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Stud-Wrenches, of which the following is a specification.

My invention relates to wrenches used for holding and turning round bodies, such as studs, bolts, and pipe; and my object is to so construct a wrench for this purpose that it will hold the stud securely and with but slight if any injury, the gripping action of the wrench being imparted by the same power and with the same movement employed in turning the stud.

The invention consists in a hand-lever provided with an eccentric, cam, or wedge-shaped jaw, to which is connected a jaw having a smooth and somewhat angular seat for the stud, or vice versa, (whereby the angular seat shall be in the former and the jaw on the latter,) in such manner that the action of the lever in turning the stud shall draw the jaws together and upon the stud, holding it by a powerful pressure toward the center from three bearing-points upon its periphery.

It consists, further, in other improvements by which the strength and holding-power of such a wrench is increased without increased expense in manufacture, all of which will be more fully hereinafter set forth and described.

In the accompanying sheet of drawings, forming a part of this specification, Figure 1 represents the wrench in position to hold a stud; Fig. 2, a side elevation of the same.

Similar letters of reference indicate corresponding parts.

A is the lever or handle of the wrench, with one end somewhat widened and finished in semicircular form. About two-thirds of this circular part is notched or milled, so as to readily seize the stud when brought in contact with it; but slight milling is necessary, as the wrench holds by virtue of a strong central pressure on the stud, and not at all, or but a very little, through the action of the teeth. Near one terminus of this circular jaw is pivoted a cam-shaped jaw, B, provided with a central hole having an angular seat, B′, in which the stud C rests. This jaw is made with a mortise, as shown in Fig. 2, in which the other jaw swings. This not only serves to strengthen and steady the jaw when exposed to wrenching strains, and to afford a double bearing for the pivot *a*, but it also increases the holding-power of the jaws by giving the stud a comparatively long seat, against which it is forced by the direct central pressure of the eccentric jaw D. When the jaws are parallel and are hinged by a lap or half hinge only, the twisting strain on the pivot is very great, and the tendency is to turn the jaws so they do not present the full face to the stud, and consequently do not exert their entire holding-power. All of these difficulties my invention obviates, and admits of the loose jaw being made much lighter than otherwise. Its peculiar form otherwise insures great strength with a minimum of metal, and, for all places where the wrench can be slipped over the end of the stud, bolt, or pipe, is quite as convenient as any other form. Where this is impracticable an opening may be made in the under side of the jaw of the wrench sufficient to admit the body of the stud, bolt, or pipe from the side.

The action of the wrench will be readily seen. Referring to Fig. 1, it will be apparent that by pressing down on the handle of the lever A, the stud C being stationary, the jaws of the wrench, having the pivot *a* as a fulcrum, are drawn together, and the stud is forced into the angle of jaw B′ by the combined pushing and rolling action of the eccentric jaw D—an action that cannot be obtained from a jaw with a straight face. In consequence of this rolling as well as pushing action of the eccentric jaw, it is important that the face of the angular jaw B′ should be smooth; otherwise the teeth in the upper angle will tend to retard rather than assist the object in view, the forcing of the stud against the two points indicated by the outer dotted lines, or, perhaps, more correctly speaking, the forcing of these points on the wrench-jaws powerfully against the stud at the three points on its periphery indicated. This pressure naturally increases with the resistance of the stud, so there is no possibility of slipping, while the wrench, holding by this squeezing-power, does not mutilate the stud as do those wrenches which hold by the scarifying action of teeth solely.

I am aware that a pipe-wrench having a head pivoted to the end of a lever is not new, and I do not claim such device, broadly; but in all such wrenches of which I have any knowledge the head is notched or toothed in some manner, so as to grip and scarify the article to be turned, and the end of the lever-jaw is made angular, instead of being eccentric-shaped, the difference between which and my device in practical operation has already been pointed out. My invention therefore only contemplates the use of a smooth-faced angular jaw pivoted to a lever having an eccentric-shaped jaw at the end, substantially as shown.

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

The combination of the head B′, centrally perforated, and having a V-shaped notch leading from said central perforation, the two cheeks formed on said head, the eccentric serrated biting-jaw pivoted between the said cheeks, and the handle formed on said jaw, all constructed and adapted to operate substantially as described.

Witness my hand this 8th day of March, 1883.

JOHN H. POLLARD.

Attest:
FRANK G. CLARK,
J. M. ST. JOHN.