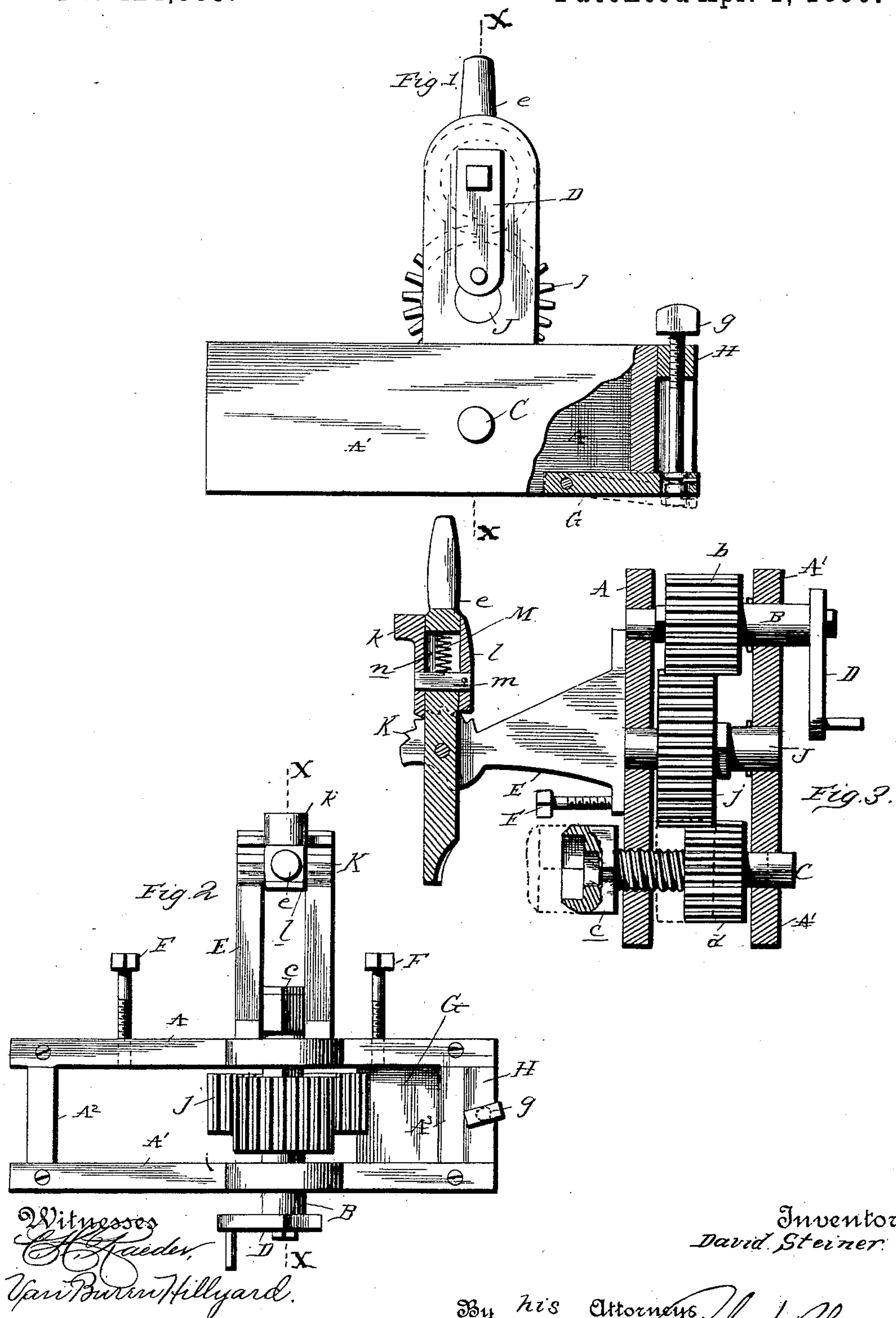


(No Model.)

D. STEINER.  
NUT WRENCH.

No. 424,583.

Patented Apr. 1, 1890.



Witnesses  
*C. H. Gaeder*  
*Van Buren Hillyard*

Inventor  
*David Steiner*

By his Attorneys

*Robert H. Lacey*



# UNITED STATES PATENT OFFICE.

DAVID STEINER, OF ADAMSBURG, PENNSYLVANIA.

## NUT-WRENCH.

SPECIFICATION forming part of Letters Patent No. 424,583, dated April 1, 1890.

Application filed July 11, 1889. Serial No. 317,203. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID STEINER, a citizen of the United States, residing at Adamsburg, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Nut-Wrenches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to nut-wrenches, and has for its object the provision of a device for quickly removing and adjusting the nuts to bolts. The device is especially designed to facilitate the construction of bridges and railroads where a great many bolts are used.

The improvement consists of a frame, speed-gearing, and adjusting and leveling devices. One of the shafts is threaded at one end in one side of the frame and its other end is adapted to fit loosely in the other side of the frame, so that during the revolution of the shaft it will simultaneously receive a longitudinal movement, the end of the said shaft being provided with a socket-head which is adapted to receive the nut. The side of the frame is provided with adjustable stops to regulate the distance between their ends and a yielding arm to adapt the device to different thicknesses of timber or rails of different thicknesses. The leveling device is a plate which is hinged at one end and vertically adjustable at the other end, being adjusted by a set-screw or equivalent device. This plate need not necessarily be hinged at one end. It may be adapted to move bodily up and down to elevate or lower the device.

The improvement further consists in the peculiar construction and arrangement of the parts, which will be more fully hereinafter set forth, and shown in the drawings, in which—

Figure 1 is a side view, parts being broken away, of a device of my invention. Fig. 2 is a top plan view. Fig. 3 is a cross-section on the line X X of Figs. 1 and 2.

The frame, composed of the sides A and A'

and the ends A<sup>2</sup> and A<sup>3</sup>, supports the shafts B, J, and C. The shaft B, having one end extended and provided with the crank D, has the gear-wheel *b* mounted thereon. The shaft C is threaded at one end, which end extends through a correspondingly-threaded opening in the side A and terminates in the socket-head *c*, and its other end is mounted loosely in the side A' and is sufficiently long to permit a longitudinal movement of the shaft and yet have a bearing in the side A'. The pinion *d*, keyed to the shaft C, is in gear with the gear-wheel *b* at all times through the gear-wheel *j* on shaft J. Now, when the shaft B is rotated by means of the crank D, the shaft C will likewise be rotated through the gearing *b. j* and *d* will at the same time receive a longitudinal movement in its bearings in the sides A and A' by reason of the threaded portion thereof engaging with the threaded opening in the side A.

The overhanging arm or brackets E are designed to extend over the rail or timber, and the lever *e*, pivotally connected with the end of the arm or bracket and extending parallel with the side A, is adapted to embrace the said rail or timber between it and the frame. This lever *e* is pivotally secured to the arm E, so that its lower end may be turned out when adjusting or removing the device from the rail or timber. The lever *e* is provided with a sliding latch *k*, which is adapted to engage with one of a series of teeth the toothed segment K at the outer end of the bracket and hold the said lever in an adjusted position. The latch *k* is connected with the plate *l* by the cross-bar *m*, which passes through the slot *n* in the lever, and is held in engagement with the segment K by the spring M, which is placed between the upper closed end of slot *n* and the cross-bar *m*.

Inasmuch as the timbers and the rails vary in thickness, it was found necessary to provide the adjustable stops F, which are secured to the frame on the side facing the lever *e*. These stops compensate for this variation of thickness, and can be adjusted in or out, as may be desired.

The plate G is vertically adjustable to elevate or lower the device, so as to bring the shaft C opposite or in line with the bolt to be



operated on, and is hinged at one end and adjustable at the other end, being adjusted by the set-screw *g*, which is screwed in the cross-bar *H*, secured between the sides *A* and *A'*.

The device is placed alongside of the timber or rail to be bolted, and is held thereto by the lever *e*, and, the nut being fitted in the socket *c*, the shaft *C* is rotated. Obviously the nut will be advanced or screwed home on the bolt and the shaft *C* will follow after the nut and prevent the nut from leaving the shaft. When unscrewing a nut or bolt, the reverse of the operation just described takes place, the shaft *C* will recede and the bolt or nut will follow, thus keeping the head of the bolt or the nut and the socket in engagement during the whole operation.

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

1. The combination, with the frame and the nut-wrench-operating mechanism carried thereby, of the bracket *E*, having toothed segment *K*, and the pivoted clamping-lever *e*, having latch *k* to engage with the said toothed segment, substantially as described.

2. The combination, with the frame and the nut-wrench-operating mechanism carried thereby, of the adjustable stops on one side of the frame and near each end thereof, the overhanging bracket on the same side of the frame as the adjustable stops, and the clamping-lever arranged between the said stops and carried by the said bracket and adapted to

be engaged therewith to hold the wrench in place on the rail, substantially as described.

3. The combination, with the frame carrying the wrench-operating mechanism, of the bracket *E*, having toothed segment *K*, the clamping-lever *e*, having latch *k*, and the adjustable stops *F*, substantially as and for the purpose described.

4. The combination, with the frame and the nut-wrench-operating mechanism carried thereby, of an adjustable plate *G* and a set-screw to change the level of the frame and hinged at one end thereto, screwed into the frame, and engaging the free end of the plate *g*, substantially as and for the purpose described.

5. The herein shown and described nut-wrench, comprising the frame consisting of two side and two end pieces, the side pieces having a journal and a threaded perforation, respectively, the adjustable stops, and the overhanging bracket on the same side, the clamping-lever carried by the said bracket, the shaft having a nut-socket and journaled at one end in one side of the frame, and having one end threaded and engaging in said threaded perforation, the pinion *d* on the said shaft, the shaft *B*, having a crank *D* and a pinion *b*, and the intermediate gear-wheel *j*, substantially as described.

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

DAVID STEINER.

Witnesses:

ANDREW STRITTMATTER,

D. C. MORRIS.