

UNITED STATES PATENT OFFICE.

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TO FRANK O. LIBBEY, OF LAWRENCE, MASSACHUSETTS.

NUT-WRENCH.

999,988.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES C. GUERNSEY, citizen of the United States, residing at Derry, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Nut-Wrenches, of which the following is a specification.

This invention relates to wrenches and has for its object the provision of a comparatively simple, and thoroughly efficient device of this character, the construction of which is such that the movable jaw thereof may be quickly adjusted to different positions on the supporting shank and securely locked against accidental displacement during the operation of the tool.

A further object of the invention is to provide a wrench the movable jaw of which may be firmly clamped upon a nut or other object to which it is applied, after said jaw has been moved into engagement therewith.

A further object is to provide a wrench having a threaded stem or spindle depending from the movable jaw thereof and rigid therewith, there being a finger-piece or cam depending from the movable jaw and having interior left-hand threads for engagement with the threads on the spindle and exterior right-hand threads for engagement with corresponding threads on the supporting shank.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a side elevation of a quick acting wrench constructed in accordance with my invention showing the finger-piece partially rotated to effect the clamping of the movable jaw. Fig. 2 is a longitudinal sectional view. Fig. 3 is a front elevation of a portion of the wrench showing the cam moved to the limit of its rotary movement. Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 2 looking in the direction of the arrow. Fig. 5 is a transverse view taken on the line 5—5 and look-

ing in the direction of the arrow. Fig. 6 is a transverse sectional view showing the cam rotated on the spindle to permit free sliding movement of the movable jaw on the shank. Fig. 7 is a detail perspective view of the spring detached.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

The improved wrench forming the subject-matter of the present invention comprises a shank 5 preferably rectangular in cross-section as shown, and having one end thereof provided with a rigid jaw 6, and its other end extended within a supporting handle 7, of any suitable construction.

Slidably mounted on the shank 5 is a movable jaw 8 having spaced keepers 9 pierced by transversely alined openings to permit the passage of the shank. The keepers 9 are connected by a solid portion or web 10, the inner face of which is formed with a longitudinal groove defining oppositely disposed lips 11 which embrace the opposite sides of the shank 5 and serve to assist in guiding the movable jaw when the latter is adjusted longitudinally of the shank into engagement with a nut or other object. Depending from the bottom of the lower keeper 9, and preferably formed integral therewith, is a rigid stem 12 having exterior left-hand threads 13 which engage corresponding left-hand-threads 14 formed in the central bore of an actuating cam 15. The exterior walls of the cam 15 are provided with right-hand threads 16 adapted to engage inclined teeth 17 formed in one longitudinal edge of the shank 5, so that after the movable jaw is adjusted longitudinally of the shank and positioned against a nut or other object to be gripped, and the cam rotated, the exterior threads on said cam will engage the teeth on the shank and cause the movable jaw to firmly grip the nut, while at the same time the interior left-hand threads on the cam by engagement with the threads on the stem will impart a further longitudinal movement to the movable jaw so as to exert an additional pressure on the nut and prevent accidental slipping thereof when removing said nut from a bolt, or the like. One side

of the cam is flattened at 18 and devoid of threads so that when the cam is rotated until the flattened portion thereof is opposite the teeth on the shank the jaw may be quickly adjusted longitudinally of the shank to a position in contact with the nut. That portion of the cam at the flat face 18 thereof is extended longitudinally to form a finger-piece 19 by means of which the cam may be rotated on the threaded spindle or stem to effect the adjustment of the movable jaw.

Seated in the shank receiving recess of one of the keepers 9 is a bearing plate 20 having its opposite ends reduced and bent laterally to form retaining fingers 21 and its intermediate portion bowed laterally for engagement with the adjacent smooth face of the shank 5, thus to assist in preventing tilting or wobbling movement of the jaw 8 during the initial adjustment thereof, and also to assist in holding the threaded stem or spindle in proper relation with respect to the teeth on the shank so that when the cam is rotated the exterior threads on said cam will intermesh with the teeth on the shank.

The exterior threads on the cam, by engagement with the teeth on the shank not only serve to adjust the movable jaw longitudinally on said shank, but also serve to lock the jaw in adjusted position and prevent accidental displacement thereof during the operation of the tool.

It will be noted that by making the threaded stem or spindle stationary, the latter may be cast or otherwise formed integral with the movable jaw, thus materially reducing the cost of manufacture. It will also be noted that by having the cam loosely mounted on the stem or spindle and engaging the threads thereon, said cam may be readily applied to the stem or removed therefrom when the exterior threads become worn or mutilated without the necessity of detaching the stem from the movable jaw.

A further advantage in having the stem rigid or integral with the jaw, is due to the fact that the threads on the spindle are exposed to admit of easy lubrication of the parts, while wear on said threads is reduced to a minimum. In the old type of wrench the spindle or stem is threaded in the movable jaw, thus not only necessitating threading of the stem but also rendering it necessary to form a correspondingly threaded opening in the movable jaw for the reception of the stem. Moreover, when the stem is threaded in the movable jaw, the end of the stem extending within the movable jaw very often becomes rusty, in case the wrench is exposed to the elements, thereby preventing free movement of the jaw, with the result that the wrench has to be dismantled and the jaw removed therefrom to permit lubrication of the threads on the stem.

It will be noted that the interior threads on the cam, by engagement with the threads on the spindle, provide an extra take up to the extent that the wrench is enabled to take any standard nut on a full thread.

With a wrench constructed in accordance with the present invention the stem or spindle may be cast, or otherwise formed at the same time as the movable jaw, while inter-engaging threads may be readily lubricated without the necessity of dismantling the wrench.

Having thus described the invention what is claimed as new is:—

1. A wrench including a shank having a fixed jaw and provided at one longitudinal edge thereof with transversely disposed inclined teeth, a movable jaw slidably mounted on the shank and provided with a spindle rigid with said jaw and depending from the bottom thereof, said depending spindle being provided with left-hand threads, and a removable cam having interior left-hand threads for engagement with the threads on the spindle and provided with exterior right-hand threads adapted to engage the teeth on the shank.

2. A wrench including a shank having a fixed jaw and provided at one longitudinal edge thereof with transversely disposed inclined teeth, a movable jaw slidably mounted on the shank and provided with a depending spindle formed integral with said jaw and having exterior left-hand threads, and a removable cam mounted for rotation on the spindle and having interior left-hand threads for engagement with the threads on the spindle and provided with exterior right-hand threads adapted to engage the teeth on the shank, one side of the cam being flat and devoid of the threads, and the metal at said flat portion being extended to form a finger-piece.

3. A wrench including a shank having a fixed jaw and provided at one longitudinal edge thereof with transversely disposed inclined teeth, a movable jaw slidably mounted on the shank and having spaced transverse keepers provided with openings to permit the passage of the shank, said keepers being connected by an intermediate web having its inner face provided with a longitudinal groove defining oppositely disposed guide-lips for engagement with the adjacent sides of the shank, a spindle depending from and formed integral with the lower keeper and provided with exterior left-hand threads, a removable cam mounted for rotation on the spindle and having its central portion provided with a bore, the walls of which are formed with left-hand threads adapted to engage the threads on the spindle and provided with exterior right-hand threads for engagement with the teeth on the shank, a portion of the exterior walls

of the cam being devoid of threads and provided with a laterally extending finger-piece.

4. A wrench including a shank having a
 5 fixed jaw and provided at one longitudinal
 edge thereof with transversely disposed in-
 clined teeth, a movable jaw slidably mount-
 ed on the shank and provided with spaced
 10 keepers having transversely alined recesses
 formed therein to permit the passage of the
 shank, a threaded spindle depending from
 and formed integral with one of the keepers
 and provided with exterior left-hand
 15 threads, a cam carried by and mounted for
 rotation independently of the spindle and
 having interior left-hand threads adapted
 to engage the threads on the spindle and
 provided with exterior right-hand threads
 20 for engagement with the teeth on the shank,
 and a bearing plate seated in the recess of
 one of the keepers, and having its interme-
 diate portion engaging the shank opposite

the teeth thereon and its opposite ends bent laterally to produce retaining fingers for engagement with the adjacent edges of said 25 keeper.

5. A wrench including a shank having a fixed jaw and provided at one longitudinal edge thereof with transversely disposed in- 30 clined teeth, a movable jaw slidably mount- ed on the shank and provided with a spindle rigid with said jaw and depending from the bottom thereof, and a cam mounted for rotation on the spindle and provided with exterior threads adapted to engage the teeth 35 on the shank, said cam having a rotative and longitudinal adjustment independent of the spindle.

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

CHARLES CHESTER GUERNSEY. [L. s.]

Witnesses:

RICHARD C. POTTER,
 P. T. CLAIR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."