2 Sheets--Sheet 1.

D. McFARLAND.

Wrenches.

No. 157,968. Patented Dec. 22, 1874.

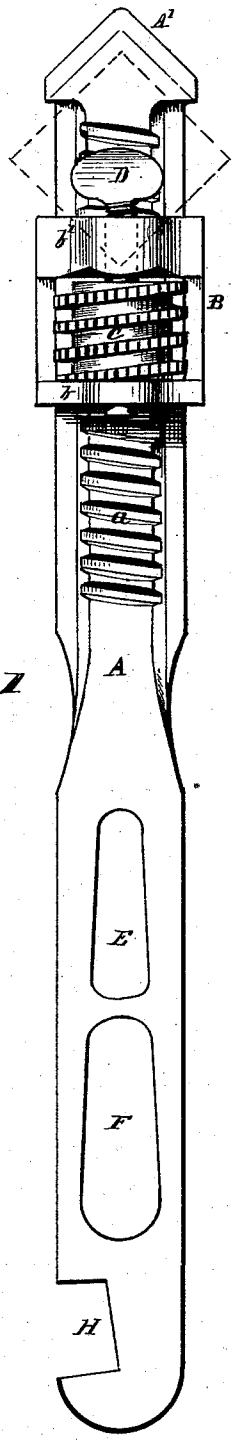

Fig. 1

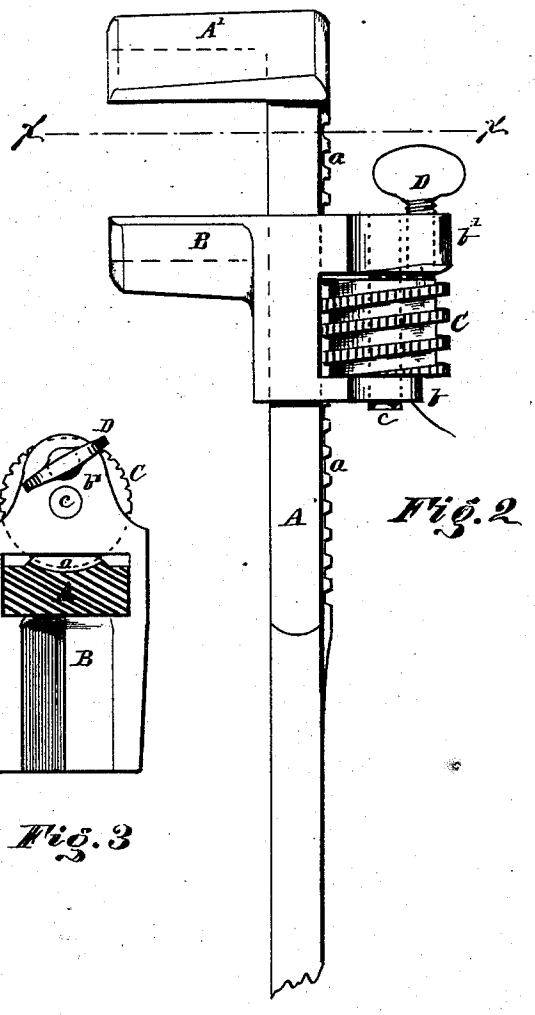

Fig. 2

Fig. 3

Inventor

David McFarland

Witnesses

Geo. C. Taft

S. R. Baston

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

D. McFARLAND.

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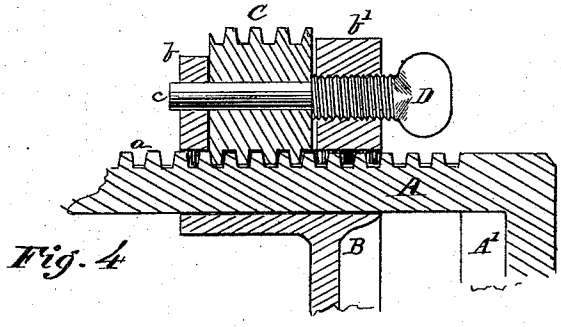

Fig. 4

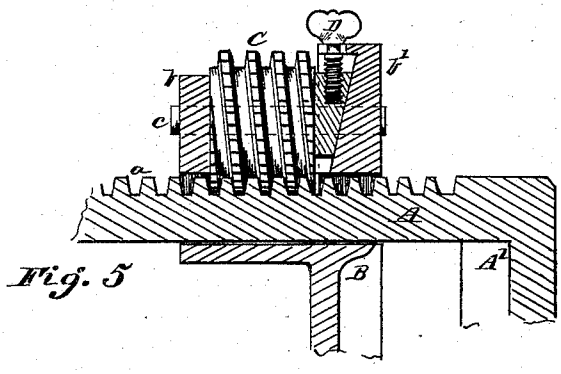

Fig. 5

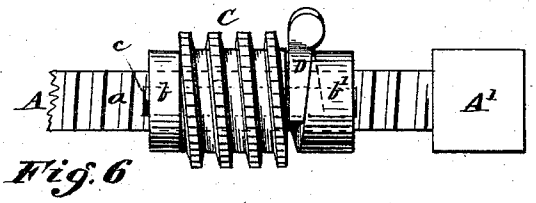

Fig. 6

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UNITED STATES PATENT OFFICE.

DAVID McFARLAND, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **157,968**, dated December 22, 1874; application filed November 5, 1874.

To all whom it may concern:

Be it known that I, DAVID McFARLAND, of the city and county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Carriage-Wrenches; and I do hereby declare that the following is a full, clear, and exact description thereof, sufficient to enable those skilled in the art to which this invention belongs to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a back view of my improved carriage-wrench. Fig. 2 represents a side view of the same; and Fig. 3 represents a transverse section at line *x x*, Fig. 2. Figs. 4, 5, and 6 represent modifications in the construction of the rosette mechanism.

My invention consists in the employment of a set-screw, in combination with the movable jaw and its operating rosette or worm, for the purpose of setting back said worm against its rack, and thus, by forcing forward the jaw, cause it to firmly clamp or gripe the nut, so that when removed from the axle end or bolt the nut will not fall from the jaws of the wrench.

In the drawings, A denotes the bar of the wrench, formed of metal, rounded at its lower part to serve as a handle, and having a head-jaw, A′, at its upper end, and a screw-rack, *a*, along its rear upper part. B indicates a movable jaw, fitted to slide along the upper portion of the bar A, and provided with projecting ear-pieces *b b′*, between which a worm or screw-cut rosette, C, is arranged, supported on a center pin, *c*, in such position as to mesh with the rack *a*, and when revolved to move the jaw B along the bar A. D indicates a set-screw, arranged in connection with the jaw B, for the purpose of setting back the worm C against the rack *a*, and to thus force the jaw B forward with a more powerful pressure than can be exerted with simply the worm or rosette C alone. Screw D is provided with a comparatively fine thread, and is in the present instance arranged through the ear *b′*, with its end in position to strike against the upper part of the worm C when said screw D is turned in. The worm C is made with a slight looseness or longitudinal play between the ears *b b′*, so that when the jaw B is moved forward against the nut the worm C will crowd against the ear *b′*, and leave a small space between the worm and ear *b*. When the jaws are tightened on the nut as firmly as can conveniently be done by means of the worm C, the screw D can be turned in against the end of the worm C, and the force of said screw thus exerted against the rack *a* causes the jaws A′ B to gripe the nut as a vise, so that when the nut is removed from the bolt or axle end it will be retained in the wrench. In this manner the greasy nuts on carriage-axles can be removed and replaced without the necessity of taking hold of the nuts with the hand, and without liability of dropping them upon the ground.

I do not confine myself to the particular construction and arrangement of the screw D herein shown, as said screw may be varied in form, and be arranged in various positions to act against the worm or its supporting-pin *c*; or, if desired, said pin *c* may be fitted with a screw-thread to the ear *b′*, and be provided with a shoulder to act upon and throw back the worm when the pin is turned in; or, again, a screw-wedge, cam, or equivalent device may be employed, the resultant action upon the worm and jaw being the same. I prefer, however, the construction herein shown.

The jaws A′ and B are preferably formed with angular depressed faces, so as to fit onto the corners of the nut, as indicated by dotted lines. (See Fig. 1.) Tapering square-edged slots E and F are formed through the handle of the bar, which render the part light, and serve as a wrench for small nuts, and a fork-opening, H, is formed at the end of the handle for similar use. The openings E, F, and H are made of proper size to fit the various sizes of small nuts commonly used in the construction of carriages, and are of great convenience for tightening such nuts when they become loose by the jar and use of the carriage.

The vise griping-jaws A′ B are more especially designed for use in handling the large nuts which retain the wheels upon their axles.

I am aware that wrenches have heretofore been made and used in which the sliding jaw

is operated by a screw-rosette working in a rack formed upon the bar, and I do not herein make claim to such feature; but

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

The combination, with the jaw B and its operating worm or rosette C, of the set-screw D, for the purpose of setting back said worm against the rack *a* and forcing forward the jaw, substantially as and for the purpose set forth.

DAVID McFARLAND.

Witnesses:
GEO. C. TAFT,
S. R. BARTON.