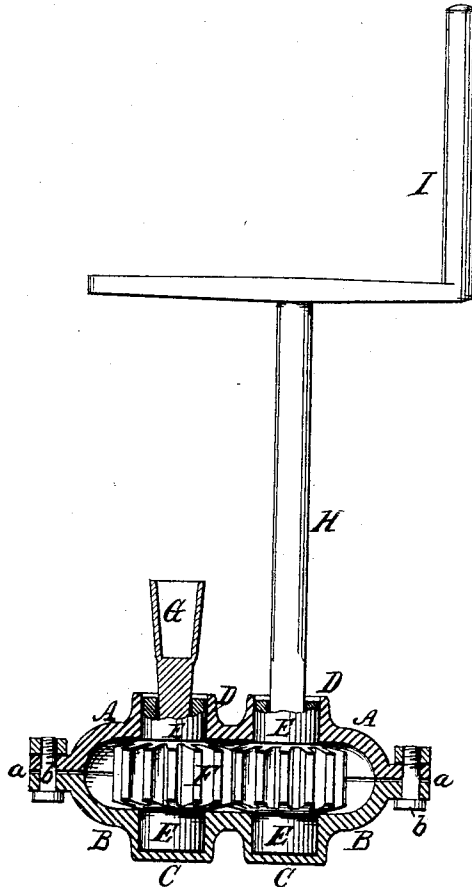


J. B. FOX.

WRENCH.

No. 189,352.

Patented April 10, 1877.



Witnesses;
H. W. Howard,
Geo. J. Bonner

Inventor,
J. B. Fox
By atty
Jm. C. W. Fature

UNITED STATES PATENT OFFICE.

JOHN BACON FOX, OF SOUTH BEND, INDIANA.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **189,352**, dated April 10, 1877; application filed October 2, 1876.

To all whom it may concern:

Be it known that I, JOHN B. FOX, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Wrenches; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this application.

My invention has for its object to produce a wrench for the purpose of securing the nuts of tyre-bolts upon carriage and wagon wheels; and it consists of a sectional bearing-frame, within which are secured two meshing-gears, the shafts of which are provided with square recesses adapted to receive the square shanks of a wrench-block and operating-handle, as will be hereinafter more fully set forth.

In securing and loosening the nuts upon the tyre-bolts of carriage and wagon wheels great difficulty and inconvenience are experienced in operating with the ordinary wrench, from the fact that the nuts are necessarily on the inner or under side of the rim and between the spokes, so that little room is afforded for the turning of the wrench.

My invention overcomes these objections, as the operating handle or lever extends above and beyond the tyre of the wheel, and may be readily and speedily rotated, and, by its connection with one of the incased gears, and the relation therewith of the other gear and wrench-block, a nut may be easily tightened or loosened.

To enable others to more fully understand my invention I will describe the same, referring by letters to the accompanying drawing, which represents a central longitudinal section of a wrench embodying the feature of my invention.

A represents the upper, and B the lower, halves of the cast frame, provided at each end with ears *a a*, which are secured together by bolts and nuts *b*. The lower half B of the frame is formed with countersinks C, and the upper half with open bosses or bearings D, into and through which the shafts E of two meshing-gears, F, find bearings. The shafts E have a central square slot or opening par-

tially or entirely through the same, adapted to receive the square stems or shanks of a wrench-block, G, and operating-lever or crank-handle, H, and, as is obvious, the turning of the handle H rotates the gear, within whose shaft it is located, and by its relation with the other gear and wrench-block causes the latter to rotate. The gear with their shafts or hubs are dropped into position in the lower half B of the frame, and the upper half A is then placed over the same. The ears of the two halves coinciding are then secured by the bolts and nuts *b*, and the parts are thus secured in proper position.

The manner of using my improved wrench is to place the wrench-block G over the nut to be turned, holding the frame A B in the hand and up against the nut. The opposite end of the frame projects beyond the side of the rim of the wheel. The crank-handle H is then inserted in place, and its position will be such that the grasping portion I will be above the rim of the wheel, and its shank outside the edge of the rim, so that the power is applied on the opposite side of the rim to that upon which the nut lies.

Of course it is immaterial which side or in which shaft or hub the wrench block and handle are secured, and it is also obvious that wrench-blocks of greater or less dimensions may be used in connection with a single frame and set of gears without departing from the spirit of my invention.

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

In combination with a frame made in two parts, and adapted to be secured together, and provided with suitable bearings, the meshing-gears with slotted shafts or hubs adapted to receive a wrench-block and operating-handle, substantially as and for the purposes set forth.

Witness my hand and seal this 30th day of August, A. D. 1876.

JOHN B. FOX. [L. s.]

Witnesses:

GEO. H. ALWARD,
JOHN BROWN.