



# UNITED STATES PATENT OFFICE.

GOTTFRIED BRIGGER, OF AKRON, OHIO, ASSIGNOR OF ONE-HALF TO  
CASPER L. KEMPEL, OF SAME PLACE.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 489,429, dated January 3, 1893.

Application filed January 18, 1892. Serial No. 418,461. (No model.)

### *To all whom it may concern:*

Be it known that I, GOTTFRIED BRIGGER, of Akron, in the county of Summit and State of Ohio, have invented certain new and useful  
5 Improvements in Wrenches; and I do hereby 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 pertains to make and use the same.

My invention relates to improvements in wrenches, more especially adapted for use in manipulating a peculiar construction of nut; and it consists in certain features of construction and in combination of parts hereinafter  
5 described and pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of a wrench embodying my invention. To enable others to more thoroughly understand my invention, however, it is deemed advisable to illustrate the wrench in connection with the peculiar nut for the manipulation of which the wrench is more especially adapted. In Fig. 2 of the drawings is therefore illustrated my improved  
5 wrench in position for manipulating a nut, the wrench, in solid lines, being shown in position to turn the nut in the direction indicated by the arrow, and, we will suppose, to tighten the nut, whereas in dotted lines, the wrench is shown in the reverse position, that is, in position for loosening the nut.

Referring, first, to Fig. 2 of the drawings, A represents the peculiar nut mounted on the end of a bolt B, C representing the object, whatever it may be, against which the nut is to be tightened. The nut is circular in plan and peculiarly grooved upon its periphery, *a*, representing the grooves, the same extending transversely of and arranged at suitable intervals about the periphery. The side walls of grooves *a* are at an angle with the bottom of the groove, as at *a'*, and radial or approximately radial with the axis of the nut, and are quite shallow.

D represents my improved wrench that is more especially adapted for use in manipulating the nut just described, the wrench, in solid

lines Fig. 2, being shown in position for tightening nut A, as aforesaid. The wrench comprises but a bar of metal terminating at the forward end in jaws *d* and *d'*, jaw *d'* being quite short as compared with jaw *d* and terminating in an inwardly-presenting projection, *d<sup>2</sup>*, of suitable size to enter the peripheral grooves of the nut, with the inner face of the projection as at *d<sup>2</sup>*, adapted to grip the adjacent wall of the respective groove as shown. The wrench is cut away between the jaws, as at *D'*, to enlarge its adaptability for manipulating different sizes of nuts, the longer jaw *d* being approximately straight on its inner face, as shown, and adapted to engage and bear against the periphery of the nut. To loosen the nut, the wrench is merely reversed as shown in dotted lines.

By means of my improved wrench a positive grip is had upon the nut and the latter can be manipulated with great facility; the manipulation of the wrench and the wrench itself require but little space; the wrench is exceedingly simple in construction and durable, and consequently comparatively inexpensive.

What I claim is:—

As an article of manufacture, a wrench comprising a bar of metal terminating at the forward end in integral jaws *d* and *d'*, jaw *d'* being short as compared with jaw *d* and terminating in an inwardly presenting projection *d<sup>2</sup>* of suitable size to enter the peripheral grooves of a nut, the bar being cut away between the jaws at *D'* to enlarge the adaptability of the wrench for manipulating different sized nuts, the longer jaw *d* being approximately straight on its inner edge and adapted to engage and bear against the periphery of the nut, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 7th day of January, 1892.

GOTTFRIED BRIGGER.

Witnesses:

C. R. OLIN,  
W. C. HOY.