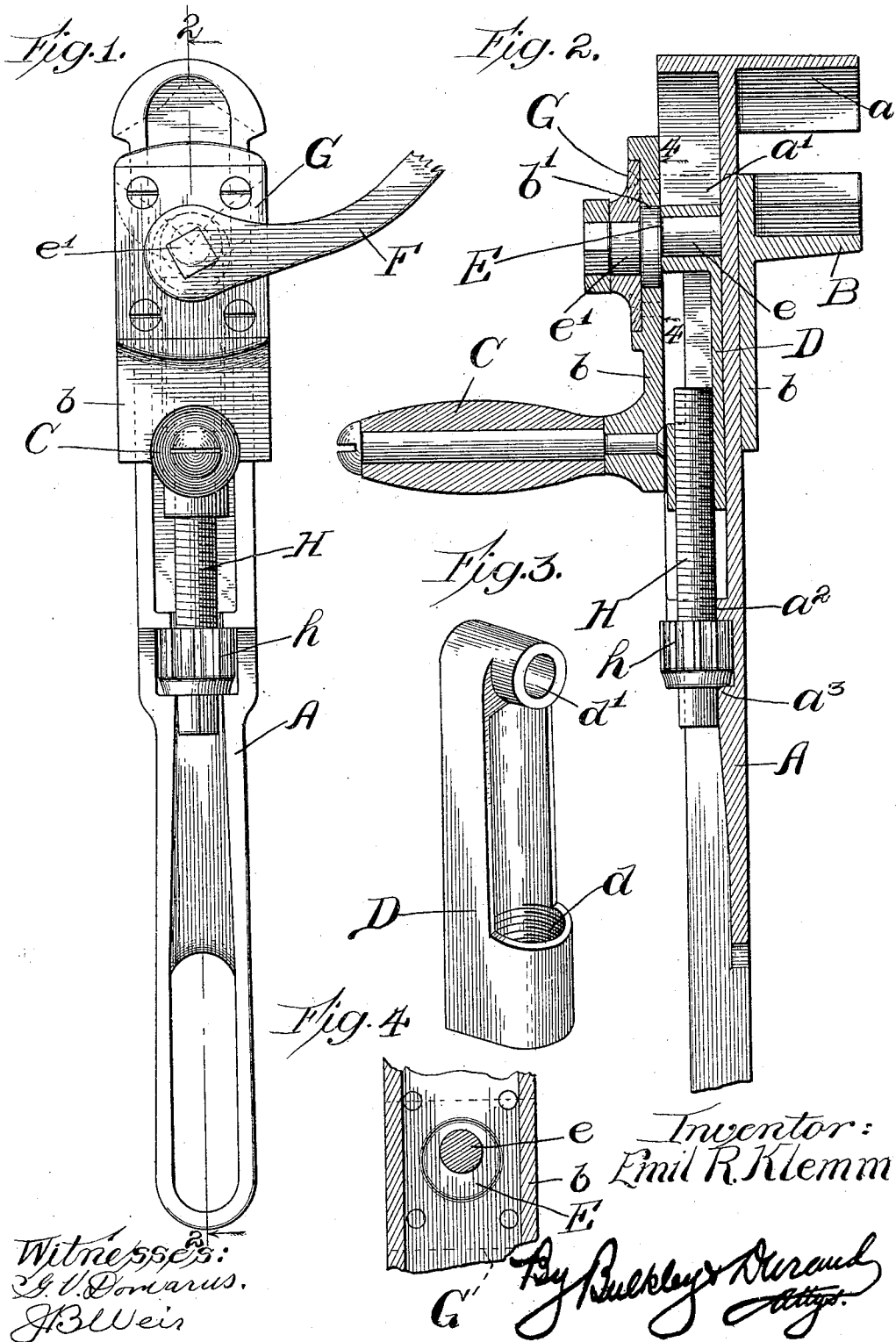


E. R. KLEMM.

WRENCH.

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Witnesses:  
 L. V. Donarus.  
 J. B. Weir

Inventor:  
 Emil R. Klemm  
 By Buckley & Durand  
 Attys.

# UNITED STATES PATENT OFFICE.

EMIL R. KLEMM, OF CHICAGO, ILLINOIS.

## WRENCH.

No. 806,815.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, EMIL R. KLEMM, a citizen of the United States of America, and a resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Wrenches, of which the following is a specification.

My invention relates to wrenches of that particular type or character in which means—such, for example, as an eccentric device—are employed in addition to a screw for obtaining relative adjustment on the part of the jaws, the screw or screw-threaded means being usually employed for first adjusting the jaws with respect to a certain size of nut or bolt-head and the eccentric device or similar means being then actuated for the purpose of giving the jaws a final and very powerful grip on the nut or bolt-head.

Generally stated, the object of my invention is to provide an improved and highly-efficient wrench of the foregoing character; and a special object is to provide an improved construction and arrangement for relieving the eccentric device or similar means of all unnecessary or injurious strain; and another object is to provide an improved construction and arrangement whereby an externally-threaded rotary member, such as a bolt or a threaded rod, may be employed for adjusting one jaw of the wrench relatively to the other; and it is also an object to provide certain details and features of improvement tending to increase the general efficiency and service of a wrench of this particular character.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 shows the back or rear side of a wrench embodying the principles of my invention. Fig. 2 is a section on line 2 2 in Fig. 1. Fig. 3 is a perspective of the traveling nut involved in the screw mechanism for adjusting the lower jaw. Fig. 4 is a detailed section on line 4 4 in Fig. 2.

As thus illustrated my invention comprises a shank or body A, adapted to serve as a handle and provided at its upper end with a gripping-jaw *a*. It will be seen that the back of said shank or body portion A is provided with a guideway *a'* and that this portion of the shank or body is formed with straight, parallel, and smooth front and back and side sur-

faces. The adjustable jaw B is provided with a hollow portion *b*, adapted to fit and slide upon the said straight upper portion of the shank or body A of the wrench. A laterally-projecting handle C is preferably attached to and made rigid with the adjustable jaw B, so as to make the wrench more convenient to handle and operate. Also, as illustrated, the traveling nut D is provided and adapted to slide back and forth in the guideway *a'*. One end of the traveling nut is provided with a threaded bore *d*, extending longitudinal of the nut, and the other end of the said nut is provided with a transverse opening *d'*. Relative to this construction and arrangement the back of the adjustable jaw is provided with an opening *b'*, adapted to receive and, in effect, provide a bearing for the flange or larger diameter of the eccentric-pin E. The smaller and eccentrically-formed portion *e* of said pin is adapted to engage and rotate in the opening *d'* of the said nut. Preferably the outer end of said eccentric-pin is squared to receive a crank-handle F, and the outer cylindrical portion *e'* of the eccentric-pin rotates in a cover-plate G. This cover-plate is, it will be seen, fitted into and secured to the back or outer portion of the hollow part of the movable jaw and bears upon the flange or larger diameter of the eccentric-pin for the purpose of holding the latter in place. A rotary screw-threaded member, such as a threaded rod or bolt H, is provided and arranged in engagement with the threaded bore or socket *d* of the traveling nut. In order to prevent longitudinal movement of said externally-screw-threaded member, its outer end portion is provided with an enlargement or collar *h*, which is confined between shoulders *a'* and *a''* and which also serves as a thumb-piece by which to manually rotate the screw.

With this construction and arrangement the movable jaw has an extended bearing on the shank or body portion of the wrench, and consequently slides smoothly and is not liable to bind thereon. The eccentric-pin E constitutes the medium of connection by which the rotary screw communicates motion to the movable or adjustable jaw, but is by reason of said extended bearing-surface relieved of all unnecessary and injurious strain. Inasmuch as the screw is rotary but not movable in an endwise direction, while the nut is non-rotary and longitudinally adjustable, the mov-

able jaw is easily and effectively adjusted without causing any portion of the mechanism below the thumb-piece *h* to move or change its position in a direction lengthwise of the shank A. Furthermore, no portion of the threaded rod or screw is compelled to slide longitudinally upon and in contact with some supporting member or portion of the body. The jaw B can be first adjusted by means of the screw H, and the final grip on the nut or bolt-head or other object can then be effected by manipulating the handle F, it being understood that this handle can be used to release the wrench from the nut or bolt-head.

The joints are preferably loose enough to permit the member D and the screw H to have a slight lateral movement at the upper end thereof when the eccentric is rotated, thus preventing binding of the parts and permitting the desired slight but powerful and final adjustment or tightening of the jaw.

What I claim as my invention is—

1. A wrench comprising a shank or body provided with a non-adjustable jaw, an adjustable jaw provided with a hollow portion inclosing and sliding upon the said shank or body portion, and comprising means including a rotary screw-threaded rod for adjusting said last-mentioned jaw, said rod being held against endwise movement, and a non-rotatable endwise-sliding member having an eccentric connection with said adjustable jaw and a screw-threaded engagement with said rod, the said shank or body having a front wall which completely separates the engaging portion of the movable jaw from the entire adjusting means, and the connection between such portion of the movable jaw and the adjusting means being made through the medium of that portion of the movable-jaw structure which extends around at each side and in the rear of said front wall, substantially as described.

2. A wrench comprising a shank or body provided with a non-adjustable jaw, an adjustable jaw mounted to slide on said shank or body, means for adjusting said jaws relatively to each other, said means including a non-rotatable endwise-sliding member having an eccentric connection with the adjustable jaw, a handle rigidly secured to the adjustable jaw, and a rotary screw for moving said member endwise, the said shank or body having a front wall which completely separates the engaging portion of the movable jaw from the entire adjusting means, and the connection between such portion of the movable jaw and the adjusting means being made through the medium of that portion of the movable-jaw structure which extends around at each side and in the rear of said front wall, substantially as described.

3. A wrench comprising a shank or body provided with a jaw, an adjustable jaw slidingly mounted upon said shank or body, means for adjusting said last-mentioned jaw, said

means including a rotary screw-threaded rod and an eccentric device, together with a non-rotatable member connecting said screw with said eccentric device, the said shank or body having a front wall which completely separates the engaging portion of the movable jaw from the entire adjusting means, and the connection between such portion of the movable jaw and the adjusting means being made through the medium of that portion of the movable-jaw structure which extends around at each side and in the rear of said front wall, substantially as described.

4. A wrench comprising a shank or body provided with a jaw, a jaw slidingly mounted on said shank or body, a rotary screw-threaded rod for adjusting the last-mentioned jaw, and additional means for adjusting said last-mentioned jaw longitudinally of and independently of said screw-threaded rod, together with a non-rotatable member having threaded engagement with said rod and connecting the latter with said additional means, the said shank or body having a front wall which completely separates the engaging portion of the movable jaw from the entire adjusting means, and the connection between such portion of the movable jaw and the adjusting means being made through the medium of that portion of the movable-jaw structure which extends around at each side and in the rear of said front wall, substantially as described.

5. A wrench comprising a shank or body provided with a jaw, another jaw slidingly mounted upon said shank or body, a nut adapted to slide upon said shank or body, an eccentric device connecting said nut with said adjustable jaw, and a rotary screw engaging and operating said nut, said screw being held against endwise movement, the said shank or body having a front wall which completely separates the engaging portion of the movable jaw from the entire adjusting means, and the connection between such portion of the movable jaw and the adjusting means being made through the medium of that portion of the movable-jaw structure which extends around at each side and in the rear of said front wall, substantially as described.

6. A wrench comprising a shank or body provided with a jaw, another jaw slidingly mounted upon said shank or body, said adjustable jaw having a hollow portion inclosing and extending entirely around said shank or body portion, a sliding nut and rotary screw, the latter being held against endwise movement, an eccentric device connecting said sliding and non-rotatable nut with the back wall of the adjustable jaw, a cover-plate removably applied to said back wall to hold the eccentric device in place, and a handle for operating said eccentric device, said nut having threaded engagement with said screw, the said shank or body having a front wall which completely separates the engaging portion of the movable

jaw from the entire adjusting means, and the  
connection between such portion of the mov-  
able jaw and the adjusting means being made  
through the medium of that portion of the  
5 movable-jaw structure which extends around  
at each side and in the rear of said front wall,  
substantially as described.

Signed by me at Chicago, Cook county, Illi-  
nois, this 30th day of August, 1904.

EMIL R. KLEMM.

Witnesses:

A. F. DURAND,  
LUCY W. WRIGHT.