

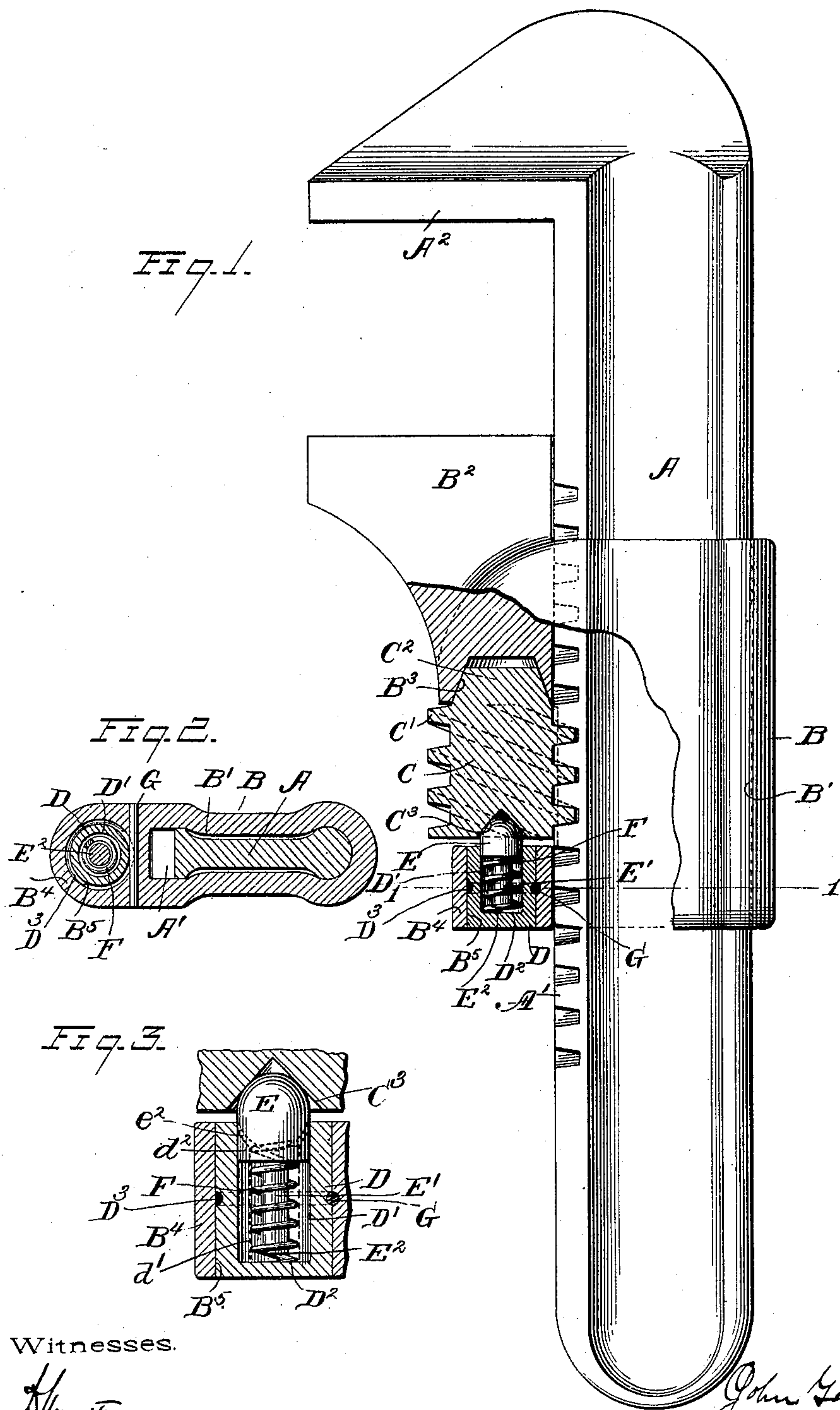
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Patented Feb. 7, 1899.

J. GARDINER.  
WRENCH.

(Application filed Apr. 27, 1898.)

(No Model.)



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## WRENCH.

SPECIFICATION forming part of Letters Patent No. 618,859, dated February 7, 1899.

Application filed April 27, 1898. Serial No. 678,932. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN GARDINER, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Wrenches, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.  
My invention relates to the construction of wrenches in which the movable jaw can be closed by the simple application of pressure, while the opening of the jaws is effected by the action of an adjusting-nut. Wrenches of this general character are described in the patent to Milton Wenger, dated December 1, 1896, No. 572,185.

The object of my invention is to simplify and improve the construction and operation of wrenches of this kind; and the leading feature of my invention consists in the provision of a spring-supported pivot adapted to abut against a socket in the rear of the adjusting-nut and to hold said nut normally pressed against its front bearing-wall, giving it freedom to move to a limited degree back from its front bearing. Preferably I secure the elastically-supported pivot in a removable socket-piece, and preferably also I secure the adjusting-nut in position on the wrench without the use of any pivot-pin and purely by the engagement of the nut itself with its front bearing and with the elastically-supported rear pivot.

The nature of my improvements will be best understood as described in connection with the drawings, in which they are illustrated, and in which—

Figure 1 is a side elevation of the wrench, partly in section; Fig. 2, a cross-sectional view on the line 1 1 of Fig. 1, and Fig. 3 a sectional view illustrating a modification.

A is the shank, and A<sup>2</sup> the jaw, of what may be conveniently referred to as the "fixed" member of the wrench, A' indicating a rack formed on the shank of the fixed member and made up of threads of long pitch.

B is what may be called the "shank," and B<sup>2</sup> the "jaw," of the relatively-movable member of the wrench, the shank B being of loop form

with a passage B' formed in it, through which the shank A can move.

B<sup>3</sup> and B<sup>4</sup> are abutments on the movable member of the wrench, between which is situated the adjusting-nut C. Preferably the front abutment B<sup>3</sup> is given the form of a conical clutch-socket, as indicated in the drawings, while the rear abutment B<sup>4</sup> is made hollow, as indicated at B<sup>5</sup>, for the insertion and removal of a socket-piece. The adjusting-nut C, having the thread C', is preferably formed with a conical front end C<sup>2</sup>, adapted to fit in the conical socket of the abutment B<sup>3</sup> and with a preferably shallow socket, as indicated at C<sup>3</sup>, at its rear end to receive a pivot, the centering of the nut being thus effected between the pivot at its rear end and the conical clutch at its front end and without the utilization of a pivot pin or pins running through the end and serving to center it, as is the case in the Wenger patent before referred to. In this particular feature, however, and apart from the construction and arrangement of the pivot or bearing abutting against the rear end of the nut the device as illustrated is not my invention, but is the invention of another.

D is the socket-piece fitting in the perforation B<sup>5</sup> of the abutment B<sup>4</sup> and, as shown, formed with an annular groove D<sup>3</sup>, by which it is secured in place through the means of a pin G, passing through a perforation in the socket and through the groove D<sup>3</sup>, as indicated in Figs. 1 and 2. The socket D' opens, as shown, opposite to the shallow socket C<sup>3</sup> in the nut D<sup>2</sup>, indicating the bottom of the socket.

E is a pivot or bearing, a portion of which lies within the socket D<sup>3</sup> and a portion of which projects beyond the socket into the socket C<sup>3</sup> at the rear end of the nut. As shown, I form this bearing or pivot with a rod-like extension E', reaching down in the socket D', the end E<sup>2</sup> of the rod being arranged to come in contact with the bottom D<sup>2</sup> of the socket when the bearing E is pushed in and arranged so as to make this contact before the rear end of the adjusting-nut comes in contact with the front face of the abutment B<sup>4</sup>, this being for the purpose of avoid-



ing a frictional contact between the end of the nut and the rear abutment.

F indicates a spring placed in the socket D' and bearing against the pivot E<sup>2</sup>, forcing it forward against the nut and normally forcing the nut forward into contact with the front abutment, in which the clutch engagement is made.

While I prefer to use the removable socket-piece D as a means for inserting the bearing E and for withdrawing said bearing when it is desired to remove the adjusting-nut, it will be obvious that any means for inserting and removing the bearing E and for holding it in place may be employed.

It will be obvious that the rearwardly-extending rod or pin E', as shown in Fig. 1, is not an essential part of my device, except in so far as it serves to form a positive abutment, preventing the rearward motion of the bearing E beyond a determined point. Such an abutment, however, may be formed in the walls of the socket-piece D and arranged to engage directly beneath the bearing E. Thus I have shown in dotted lines in Fig. 3 that the pivot or bearing E may be given a spherical form and prevented from moving too far into the spring-holding socket by means of annular walls, such as are indicated at d<sup>2</sup>, the dotted line d' in this construction indicating the walls of the socket in which the spring F is situated, and the lower portion of the bearing E being indicated in dotted lines at e<sup>2</sup>. It will be obvious that in this modification the lower surface e<sup>2</sup> of the bearing will come in contact with the annular surface d<sup>2</sup> of the socket when the bearing is pressed inward and the spring compressed, and that the rod E can thus be dispensed with.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrench having fixed and movable members, one provided with threads of long pitch and the other having a socket for holding an adjusting-screw and a clutch-surface at one end of said socket, the combination with said members of an adjusting-nut having at one end a clutch-surface adapted to engage with that on the wrench member aforesaid and made with a thread adapted to engage with that on the wrench member, and a pivot elastically supported against the end of the adjusting-screw as specified.

2. In a wrench having fixed and movable members, one provided with threads of long pitch and the other having a socket for holding an adjusting-screw and a clutch-surface at one end of said socket, the combination with said members of an adjusting-nut having at one end a clutch-surface adapted to engage with that on the wrench member aforesaid and made with a thread adapted to engage with that on the wrench member, a removable socket-block having a socket formed in it and opening opposite to the end of the adjusting-screw, and a pivot elastically supported in said socket and abutting against the end of the adjusting-screw as specified.

3. In a wrench the combination of the fixed jaw, the sliding jaw, the adjusting-nut pivotally connected at its front end with the sliding jaw said nut being adapted to make a clutch engagement with said jaw as specified and having a socket formed at its rear end, a removable socket-piece adapted to be secured to the sliding jaw opposite to the rear end of the nut and a spring-supported pivot situated in the socket-piece and abutting against the socket in the nut.

4. In a wrench, the combination of the fixed jaw, the sliding jaw, the adjusting-nut pivotally connected at its front end with the sliding jaw said nut being adapted to make a clutch engagement with said jaw as specified and having a socket formed in its rear end, a removable socket-piece adapted to be secured to the sliding jaw opposite to the rear end of the nut and a spring-supported pivot situated in the socket-piece and abutting against the socket in the nut, the socket-piece being formed as described to afford a fixed bearing to the pivot when its spring is compressed by the rearward movement of the nut.

5. In a wrench, the combination of the fixed jaw, the sliding jaw, the adjusting-nut having a conical projection at its front end entering a conical socket in the sliding jaw and having a central socket at its rear end, a removable socket-piece adapted to be secured to the sliding jaw opposite to the rear end of the nut and a spring-supported pivot situated in the socket-piece and abutting against the socket in the nut.

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Witnesses:

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