

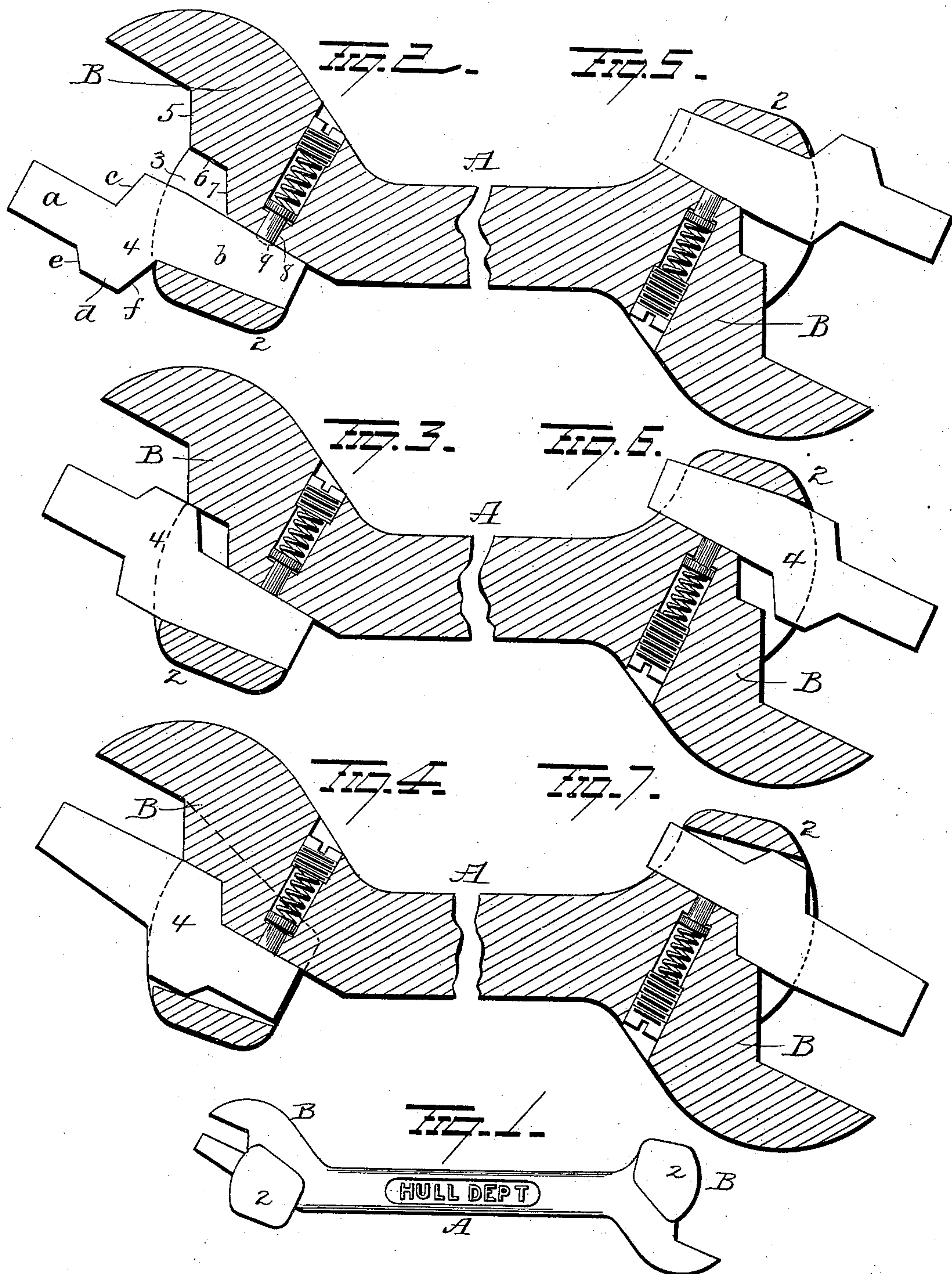
No. 616,019.

Patented Dec. 13, 1898.

C. M. RYDER.  
WRENCH.

(Application filed Feb. 19, 1898.)

(No Model.)



WITNESSES  
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# UNITED STATES PATENT OFFICE.

CHARLES M. RYDER, OF SOUTH CHESTER, PENNSYLVANIA, ASSIGNOR OF  
ONE-HALF TO CHARLES LOUIS RYDER AND WALTER EARLE RYDER,  
OF SAME PLACE.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 616,019, dated December 13, 1898.

Application filed February 19, 1898. Serial No. 670,958. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES M. RYDER, of South Chester, in the county of Delaware and State of Pennsylvania, have invented certain  
5 new and useful 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 appertains to make and use the  
10 same.

My invention relates to an improvement in wrenches, and more particularly to such as are adaptable for use with nuts, the object of the invention being to so construct  
15 a nut-wrench as to dispense with threaded portions and other adjusting devices, which are liable to become worn and, as a consequence, reduce the efficiency and reliability of a wrench, and to provide a jaw for the  
20 wrench which shall be capable of a variety of adjustments for nuts of different sizes and be held fixed in any of the various positions to which it is capable of adjustment.

A further object is to produce a wrench  
25 which shall be simple in construction and comprise few parts, which can be readily manufactured by the process of drop-forging, and which shall be effectual in all respects in the performance of its functions.

30 With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

35 In the accompanying drawings, Figure 1 is a view illustrating my invention. Figs. 2, 3, 4, 5, 6, and 7 are views illustrating the different adjustments of which the wrench is capable.

40 A represents a bar provided at its respective ends with heads B. Each head is made with a fixed jaw 1. A yoke 2 is secured to each head B at the opposite side thereof from the jaw 1 and forms a somewhat tapering  
45 pocket 3 for the reception of a removable bar 4, which constitutes the movable jaw of the wrench and by means of which the wrench can be made adaptable for use on nuts of various sizes without the use of screws or simi-

lar adjusting devices, both jaws of the wrench 50 being fixed and immovable when it is in use.

The removable bar 4 is constructed with members *a* and *b*, which are disposed end to end, but in different planes—that is to say, the longitudinal axes of the two members *a b* 55 are in substantially parallel planes. At one side of the bar 4 a beveled shoulder *c* is formed at the juncture of the two members *a b*, and at the other side the bar is made with a projection *d*, whereby to form two beveled shoulders *e f*. The head B is formed with a shoulder 5 at the base of the face of the fixed jaw 1, and in rear of the shoulder 5 said head B is made with two converging beveled faces 6 7, disposed within the pocket 3 and coöper- 65 ating under certain conditions to assist in retaining the removable bar in the position to which it may be adjusted.

The respective members of the bar 4 each constitute at different times the removable or 70 adjustable jaw of the wrench or a shank for said jaw, according to the manner in which it is placed in the pocket 3. The same bar 4 may be used at both ends of the wrench and is adapted to be so set within the sockets as to 75 adapt the wrench for nuts of six different sizes. When the bar 4 is once set within the socket, it becomes for the time being, in effect, a rigid jaw.

In Fig. 2 the member *a* of the bar 4 constitutes a jaw and the member *b* forms the shank, which is inserted into the pocket 3.

In Fig. 3 the member *a* forms the jaw and the member *b* the shank; but the bar is shown reversed from the position shown in Fig. 2, 85 so that the enlargement *d* will be disposed against the inclined face 6 in the head of the wrench, and the space between the jaws is smaller than with the parts in the positions shown in Fig. 2. 90

In Fig. 4 the bar is shown reversed end for end, so that the member *b* will form the jaw and the member *a* the shank, and the jaws will be adapted for a smaller nut than when the bar is disposed as shown in Figs. 2 and 3. 95

Figs. 5, 6, and 7 show the opposite end of the wrench, in which the distance from the face of the fixed jaw to the lower end of the



face 7 in the pocket is greater than at the other end of the wrench, so that when the bar 4 is placed therein, as shown in said Figs. 5, 6, and 7, the space between the jaws will be adapted for relatively larger nuts than can be effected by inserting the bar in the pocket at the other end of the wrench. (Shown in Figs. 2, 3, and 4.)

If desired, each wrench may be provided with two or more bars 4, having shoulders *c e f*, made of different lengths, and thus the capacity of the wrench for a large number of adjustments will be facilitated.

It may be found desirable to provide a lock for the bar 4 when in working position. Such a lock may be conveniently made by means of a small catch 8, inserted in a hole or socket 9 in the head of the wrench and pressed into a shallow notch 10 in the bar 4 by means of a coiled spring inserted in said hole or socket.

Various slight changes might be resorted to in the details of construction of my invention without departing from the spirit thereof or limiting its scope, and hence I do not wish to limit myself to the precise details herein set forth.

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

1. In a wrench, the combination with a head having a fixed jaw and a pocket, of a removable, interchangeable bar inserted into said pocket and either end adapted to cooperate with said fixed jaw, substantially as set forth.

2. In a wrench, the combination with a head having a fixed jaw and a pocket, of a bar interchangeable end for end and constituting the other jaw and a shank therefor to enter said pocket, substantially as set forth.

3. In a wrench, the combination with a head having a fixed jaw and a pocket, of a bar interchangeable end for end and adapted to be inserted into said pocket to form the other

jaw of the wrench said bar comprising two members disposed in different planes, substantially as set forth.

4. In a wrench, the combination with a head having a fixed jaw and a pocket, of an interchangeable bar adapted to be inserted into said pocket to form the other jaw of the wrench, said wrench comprising two members disposed in different planes, both members of the bar being adapted to constitute interchangeably, a jaw and a shank for the jaw, substantially as set forth.

5. In a wrench, the combination with a head having a fixed jaw and a pocket, of an interchangeable bar adapted to be inserted into said socket to form the other jaw of the wrench said bar comprising two members disposed in different planes, a shoulder at one side of the bar between the members thereof, and an enlargement having beveled shoulders at the other side of said bar between the members thereof, substantially as set forth.

6. In a wrench, the combination with a head having a fixed jaw and a socket, said head having convergent faces within said socket, of an interchangeable bar to enter said socket and form the other jaw of the wrench, and shoulders on said bar to cooperate with the walls of the pocket and said convergent faces therein, substantially as set forth.

7. In a wrench, the combination with a head having a fixed jaw and a pocket, of a removable bar, interchangeable end for end inserted into said pocket and a spring-pressed catch mounted in said head and adapted to engage said bar, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES M. RYDER.

Witnesses:

PHILIP F. LARNER,  
WM. A. SOMERVILL.