C. E. DRAKE.

WRENCH.

APPLICATION FILED JUNE 1, 1908.

**923,420.** Patented June 1, 1909.

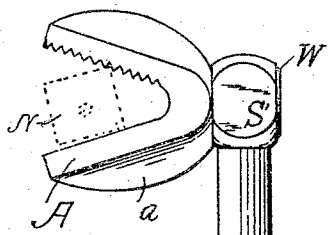



Fig. 1.

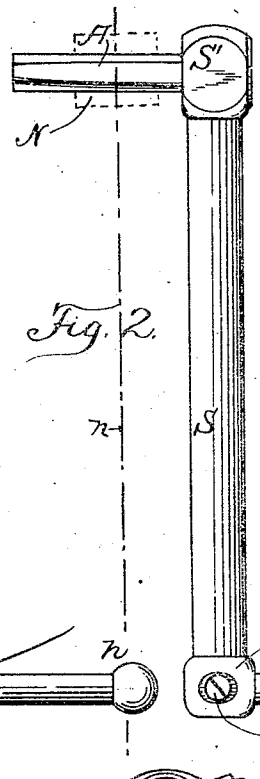



Fig. 2.

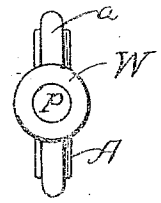



Fig. 4.

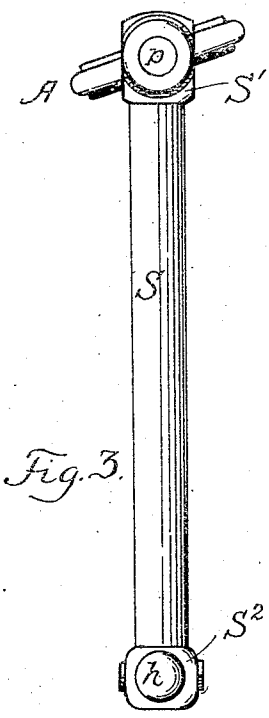



Fig. 3.

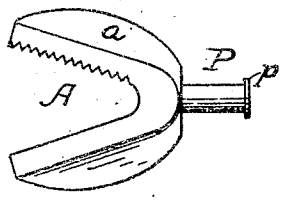



Fig. 5.

Fig. 6.




Fig. 7.




Witnesses:
Fay Graham
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Inventor:
Clarence E. Drake,
by Ira C. Graham,
Attorney.

# UNITED STATES PATENT OFFICE.

CLARENCE E. DRAKE, OF DECATUR, ILLINOIS, ASSIGNOR TO JOHN L. DRAKE, OF DECATUR, ILLINOIS.

## WRENCH.

No. 923,420. Specification of Letters Patent. Patented June 1, 1909.

Application filed June 1, 1908. Serial No. 436,136.

*To all whom it may concern:*

Be it known that I, CLARENCE E. DRAKE, a citizen of the United States, and resident of Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Wrenches, and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to tools, and more especially to the handles and shanks of wrenches; and the object of the same is to produce a wrench whose handle or shank is so constructed and connected with the head as to permit the tool to be used in cramped quarters where those of other shapes could not well be employed.

To this end the invention consists broadly in swiveling the head to the shank on an axis standing at right angles to that of the nut or member which is to be operated, and specifically in the construction of the shank and its handle so as to adapt these parts to use in a great variety of places.

One embodiment of my invention is set forth in the following specification and illustrated in the drawings wherein—

Figure 1 is a side elevation of this wrench complete, showing all parts as standing in one plane; Fig. 2 is a similar view with the head turned at right angles to the position shown in Fig. 1 and the handle slipped through the shank; Fig. 3 is a rear view with the head turned on its swivel so that its plane is oblique to the length of the shank; Fig. 4 is a rear edge view of the head; Fig. 5 is a side view of the head and its swivel, the latter upset at its rear end; Figs. 6 and 7 are edge and face views of the washer.

In the drawings the letter A designates the head of this wrench which is here illustrated as of the type popularly known as "alligator jaw"—that is to say, its opening flares outward and one side is smooth while the other side is notched, and its sides may be reinforced by webs *a*. From the base of this head in line with the jaws projects rigidly an integral pin P, best seen in full lines in Fig. 5, which passes transversely through an eye in the enlarged upper end S′ of the shank S and is headed or upset at the farther side of the eye as at *p*, a washer W preferably being interposed between said head and the eye of the shank. The latter is here illustrated as straight throughout its length, and having an enlargement $S^2$ at its other end pierced with an eye parallel with the first eye, through which passes the handle H also herein shown as straight and having an integral head *h* at one extremity. Transversely into the eye $S^2$ may be passed a set screw *s* whose tip is adapted to engage the handle to hold the latter in any position to which it may be adjusted, although this set screw is not absolutely necessary. Through the other end of the handle is passed a removable pin C, and obviously when this is removed and the set screw *s* loosened the handle can be entirely withdrawn from the shank.

In the use of this tool, the alligator jaw is applied to a square or other shaped nut N or other member which is to be turned, in a manner illustrated in dotted lines in Fig. 1, from which it will be seen that the axis of said member is at right angles to the axis of the swivel P, and to tighten the nut there illustrated the remote end of the shank would have to be moved through the arc shown by the large arrow, the handle H moving bodily with it unless the handle be removed. If the presence of other fixed parts interfere with such movement of the handle, the latter may be slid through the eye $S^2$ to the right as shown in Fig. 2 or to the left until its head *h* strikes said eye, or by removing the pin C the handle may be withdrawn entirely. Should the presence of other fixed parts yet prevent the movement of this end of the shank, the latter may be turned upon the swivel P so as to bring its end $S^2$ in Fig. 1 nearer to the reader or farther from him—thereby causing this end to swing around the axis of the nut but out of a plane through said nut at right angles to the axis.

In Fig. 2 is illustrated another use of this tool wherein the head A has been turned on its swivel into a plane at right angles to the length of the shank and wherein the handle H is necessary. The jaws being applied to the nut N and the handle H preferably being drawn through the eye $S^2$ as far as the pin C will permit, the nut N is turned by moving the head *h* to or from the reader in the position of the tool as shown in this view—such movement swinging the head A around the axis of the nut and causing the shank S to move bodily with it and the handle H to turn around an imaginary center *n* which is

the axis of the nut projected. Here again the presence of fixed parts might prevent the use of the handle in the position shown; when it could be slid to the left through the eye $S^2$ and its end carrying the pin C moved in the opposite direction to produce the same result, or the handle H could be removed entirely if the nut N were not so tight that it could not be turned by grasping the shank S and moving the latter around the imaginary line *n*.

In Fig. 3 is illustrated still another use of this tool wherein the head A is set on its swivel to a position where its plane is oblique to the length of the shank S, as necessary when the movement of the latter around the line *n* would be impeded by the existence of fixed parts, as will be understood. This tool is therefore of particular merit by reason of its adaptability to use in cramped quarters where wrenches whose shanks are rigid with their heads could not be employed, whether the head and shank stood at right angles to each other, in alinement with each other, or in a position with one oblique to the other.

I am aware that it is old broadly to connect the head with the shank by a swivel or screw, and also old to use a handle extending slidably through a shank; but

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

1. The herein described wrench, the same comprising a head having alligator jaws adapted to be applied radially to the nut and an integral pin projecting from the base of the head in line with the plane of the nut, a shank standing in a plane at right angles to that of the nut being operated on and swiveled at one extremity on said pin, and a handle at the other extremity of the shank standing in a plane parallel with the pin.

2. The herein described wrench, the same comprising a head having jaws adapted to be applied radially to the nut and an integral pin projecting from the base of the head in line with the plane of the nut, a shank standing in a plane at right angles to that of the nut being operated on and swiveled at one extremity on said pin, and a handle slidably in and removable from an eye at the other extremity of said shank and standing in a plane parallel with said pin.

In testimony whereof I sign my name in the presence of two subscribing witnesses, this 23rd day of May 1908.

CLARENCE E. DRAKE.

Witnesses:
EDITH DRAKE,
MINA CHURCH.