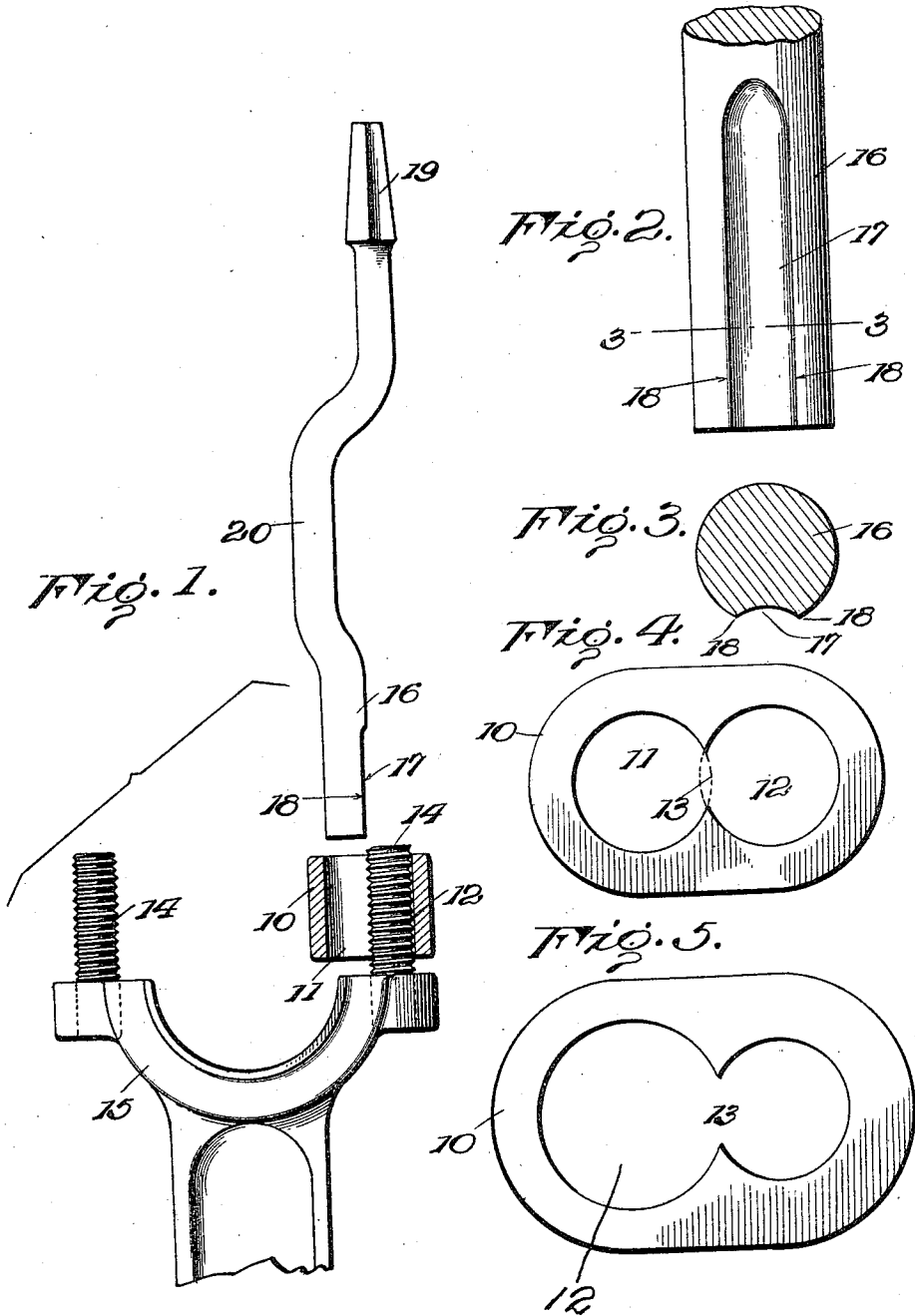


C. KELLER.
STUD BOLT WRENCH.
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Inventor

Charles Keller.

Laury & Laury, Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES KELLER, OF EAU CLAIRE, WISCONSIN.

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To all whom it may concern:

Be it known that I, CHARLES KELLER, a citizen of the United States, residing at Eau Claire, in the county of Eau Claire and State of Wisconsin, have invented certain new and useful Improvements in Stud-Bolt Wrenches, of which the following is a specification.

This invention relates to wrenches designed for performing special operations, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a simply constructed implement adapted more particularly for removing and inserting threaded members which are constructed without ordinary wrench receiving portions and commonly known as studs, and without injury to the studs.

Another object of the invention is to provide an implement of this character which may be readily adapted without material structural change to threaded members of various sizes.

With these and other objects in view, the invention consists in certain novel features of construction, as hereinafter shown and described and then specifically pointed out in the claims; and in the drawings illustrative of the preferred embodiment of the invention—

Figure 1 is a side elevation of the improved implement partly in section ready to be applied to a threaded stud.

Fig. 2 is an enlarged side elevation of the stud engaging end of the operating member.

Fig. 3 is a transverse section on the line 3—3 of Fig. 2.

Figs. 4 and 5 are plan views of the head portion of the improved implement illustrating its adaptability to studs of various sizes.

The improved implement comprises a head portion 10 having sockets 11—12 extending therethrough cutting one into the other whereby the sockets are caused to communicate at one point as shown at 13. The socket 12 is designed to engage over a threaded member, such as a stud bolt 14, the latter being shown by way of illustration threaded in an eccentric strap 15. The improved device may be readily adapted to threaded members or studs of various sizes.

The other socket 11 is designed to receive one end of a turning or operating member 16, the latter having a longitudinally directed cavity in one face as shown at 17 in Figs 2 and 3.

The cavity 17 is preferably in the form of the segment of a circle of the same diameter as the thread of the stud, so that knife-edged portions or teeth 18 are produced at the junctures of the edges of the cavity and the outer surface of the portion of the turning member which is inserted in the socket 11.

By this arrangement the recessed portion of the turning or operating member 16 may be inserted into the socket 11, before or after the member 10 has been disposed over the stud 14, with the cavity 17 disposed opposite the communicating opening 13. The cavity 17 may likewise be of greater depth than sufficient to form a segment corresponding to the diameter of the stud, as will be obvious. After the parts are coupled as above noted if a wrench or similar tool is applied to the member 16 and rotated, the knife edges or teeth 17 will grip the threads on the stud and lock the member 10 in engagement therewith so that continued rotation of the wrench will thread the stud into or remove said stud from the body 15, according to the direction of rotation of said wrench.

The member 16 is extended longitudinally and terminates in a wrench receiving head 19, and is likewise offset intermediate the ends as represented at 20 so that the center of the socket 12 and the stud 14 with which it is engaged are in alinement with said head. By this means a wrench, brace, or other implement applied to the head 19 will cause the member 10 to be rotated around the socket in the member 15 which receives the stud. The operation of inserting or removing the stud is thus facilitated and the stud removed or inserted without injury thereto. All tendency of the stud to bend when the operating member is applied is also obviated as the center of the head 19 is in alinement with the center of the socket 12. It will be noted that the head 10 is reversible while the sockets 11 and 12 open through the opposite flat ends thereof so as to permit the head to be positioned on a threaded stud from either end of the head and also permit the operating tool to be inserted in its receiving socket

from either end of said head. By having the stud-receiving socket opening through the opposite flat ends of the head, the latter may be readily slipped over a threaded stud and positioned thereon at any desired point in the length thereof so as to secure a good grip on the stud when removing the same.

A plurality of the members 10 will be furnished having the sockets 12 formed in various sizes to adapt the device to various sizes of studs, but one only of the operating members will be required for all of the head members 10 which are furnished.

The member 16 will be of tempered steel so that it will effectually grip the threads of the stud without injury to the "teeth" 18.

Having thus described the invention, what is claimed as new is:

1. An implement for inserting and removing studs including a reversible head having communicating sockets each opening through the opposite ends thereof, one of said sockets being adapted to receive a stud from either end of said head, and a separate operating tool independent of the head and insertible in the other socket from either end of said head and provided with means adapted to grip the stud when the tool is rotated.

2. An implement for inserting and removing studs including a plurality of reversible heads each provided with flat oppositely disposed ends and having communicating sockets formed therein and opening through the opposite flat ends thereof, one of the sockets of each head being adapted to receive an operating tool and the other a stud from either end of the head, the tool-receiving sockets of the different heads being all of the same size and the stud-receiving sockets of said heads being of different sizes, and an operating tool common to all of the heads and including a portion adapted to enter the tool-receiving socket of any one of the heads and grip the stud when the tool is rotated.

3. An implement for inserting and remov-

ing studs including a head having communicating sockets formed therein and each opening through the opposite ends thereof, one of said sockets being adapted to fit over the stud to be removed and a separate operating member independent of the head adapted to enter the other socket from either end of the head and having longitudinally disposed teeth adapted to bear directly against and grip the stud, said member being provided with a shank disposed in the same longitudinal plane with the teeth and having its intermediate portion offset and its terminal provided with a wrench-engaging head disposed in alinement with the first-mentioned socket.

4. An implement for inserting and removing studs including a reversible head having communicating sockets each opening through the opposite ends thereof, one of which is adapted to receive the stud to be removed, and an operating member independent of and freely separable from the head for rotating said head, said operating member including a portion adapted to enter the other socket from either end of the head and provided with means adapted to bear directly against and grip the stud and lock said stud in engagement with the head when said member is rotated.

5. An implement for inserting and removing studs including a one-piece head having communicating sockets formed therein and each opening through the opposite ends thereof, one of said sockets being adapted to receive the stud to be removed and a separate operating member independent of the head for rotating said head and including a portion adapted to enter the other socket from either end of the head and provided with means adapted to project into the first-mentioned socket at the junction of said sockets and bear directly against and grip the stud for the entire length of the stud-receiving socket when the member is rotated.

In testimony whereof I affix my signature.

CHARLES KELLER. [L. S.]