(No Model.)

W. J. SHEA & C. BIRKERY.

WRENCH.

No. 444,111. Patented Jan. 6, 1891.

Fig. 1

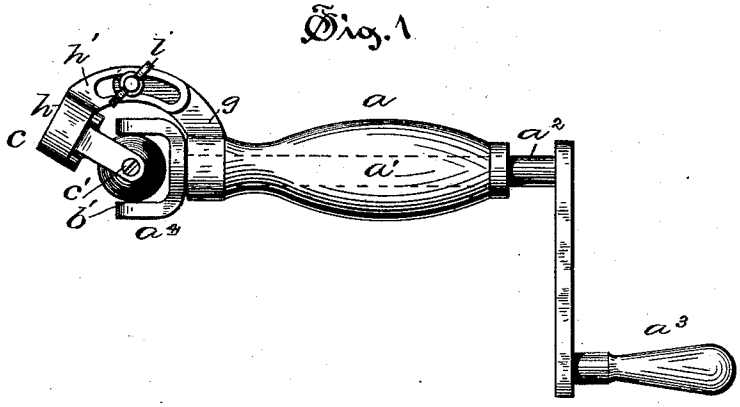


Fig. 2

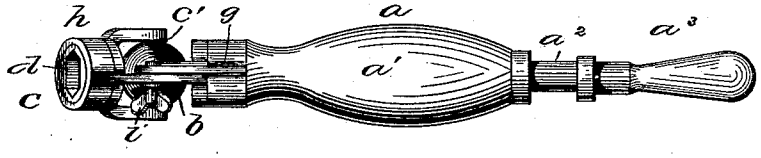
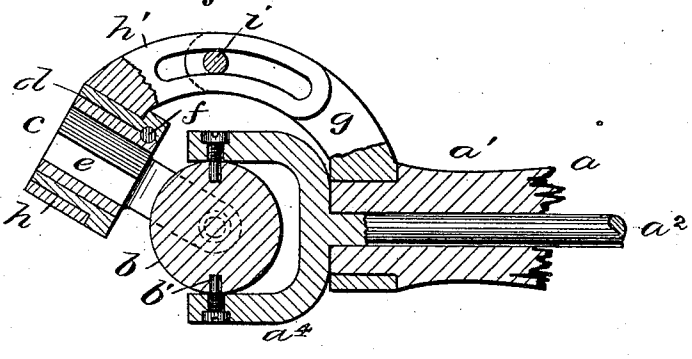


Fig. 3



Witnesses:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM J. SHEA AND CORNELIUS BIRKERY, OF HARTFORD, CONNECTICUT.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 444,111, dated January 6, 1891.

Application filed September 22, 1890. Serial No. 365,748. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM J. SHEA and CORNELIUS BIRKERY, citizens of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Wrenches, of which the following is a full, clear, and exact specification.

The invention relates to the class of wrenches wherein the head is connected with the body by a universal joint, so that the wrench can be used with the head at various angles with the body, whereby bolts or nuts may be readily removed from the interior of complicated machinery; and the object is to provide such a wrench with an adjustment between the head and body which may be set at various degrees, so the wrench may be used on nuts or bolt-heads at various angles without the aid of clamps for holding the wrench in place.

Referring to the accompanying drawings, Figure 1 is a side view of the wrench. Fig. 2 is an edge view of the same. Fig. 3 is a detail enlarged section of the head and joint.

In the views, the letter a indicates the body of the wrench, which consists of a handle a', through which passes a rotary spindle a^2, provided at one end with a crank-handle a^3 and at the opposite end with a frame a^4. A ball b is held between the projecting arms of this frame by pivots b', and a head c is secured to this ball by pivots c', that pass through the arms that project from the head. This head is provided with a socket d for the reception of nuts or bolt-heads, also for the reception of bushing e, the exterior of which is cut to fit into the socket d, while the interior is formed to fit nuts or bolt-heads, which are smaller than the socket d, so that the wrench may be capable of more extended uses. This bushing may be held in place by a key f or any other desired form of lock.

Secured to the ferrule upon the forward end of the handle is a projecting arm g, formed on the arc of a circle, the center of which is preferably the center of the ball, and secured to a collar h, encircling the head c, is an arm h', formed on a similar arc. These arms are of such a length as to overlie each other, and one is provided with a longitudinal slot, through which the shank of a clamp-screw i passes into the other arm, in order that the two arms may be clamped together to retain the head at the desired angle with relation to the handle at which the wrench is to be used. With this adjusting-clamp for holding the parts the angular relation between the head and body is kept constant, so that the head will hold upon a nut, bolt, or screw-head without wabbling or slipping off when used at an angle without the aid of any holding-clamp, which cannot be applied when it is desired to use the wrench among the parts of a complicated piece of machinery, as a printing-press, where a common or ordinary angle-wrench cannot be used.

We claim as our invention—

1. A wrench consisting of a body, a head connected with the body by a universal joint, and an adjustable clamp between the head and body, substantially as specified.

2. A wrench consisting of a handle bearing a spindle having a crank fastened to one end and a ball pivoted to the opposite end, a socketed head pivoted to the ball, and a collar encircling the head adjustably connected with a collar encircling the handle, substantially as specified.

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Witnesses:
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