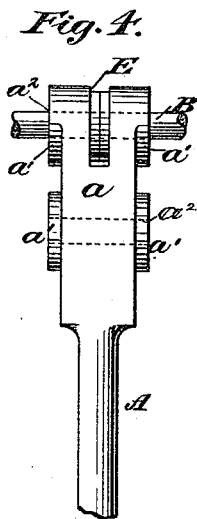
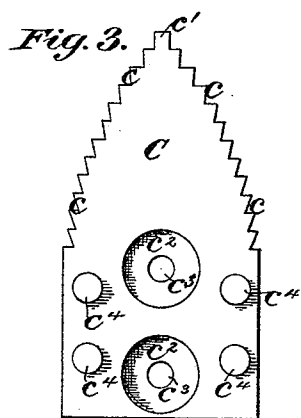
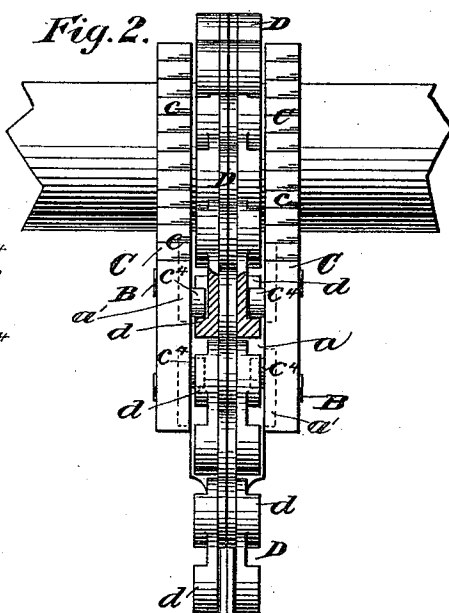
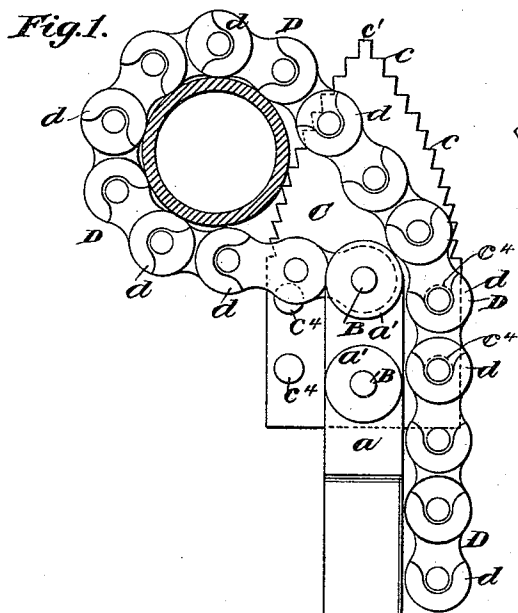


(No Model.)

G. W. BUFFORD.
CHAIN WRENCH.

No. 442,569.

Patented Dec. 9, 1890.



Witnesses:-
D. H. Hayward
O. Sundgren

*Inventor:-
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by his attorneys
Braunt & Sewall*

UNITED STATES PATENT OFFICE.

GEORGE W. BUFFORD, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF
TO JOHN E. KITSON, OF SAME PLACE.

CHAIN-WRENCH.

SPECIFICATION forming part of Letters Patent No. 442,569, dated December 9, 1890.

Application filed April 29, 1890. Serial No. 349,916. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BUFFORD, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Chain-Wrenches, of which the following is a specification.

My invention relates to chain-wrenches in which notched jaws are forced into contact with a pipe or other object to be turned by means of a flexible chain wrapped around the object and secured to the jaws, the object of the present invention being to so construct the wrench that it may be used in whichever way it chances to be picked up without requiring any change in the point of fixed attachment of the chain thereto.

With this end in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 represents the wrench in side elevation in engagement with the pipe, one of the jaws being removed. Fig. 2 is a view in front elevation. Fig. 3 is a detached inside view of one of the jaws; and Fig. 4 is a detached view of the end of the handle at the point where the jaws are secured, showing a portion of one of the fastening-rivets in position.

A represents the handle of the wrench terminating at one end in a squared or flattened portion *a*, the said flattened portion being provided on its opposite sides with outwardly-projecting bosses *a'*, in the present instance two of said bosses being provided upon each side of the flattened end of the handle and separated from each other a short distance. Centrally through the bosses *a'* and through the handle perforations *a''* are formed for the reception of rivets B for securing the jaws in place.

The jaws are represented by C, and in the present form of my invention each jaw is provided with a series of teeth *c* on its opposite edges, the said series of teeth gradually approaching each other toward the point *c'* or outer end of the jaw. Each jaw C is further provided with a pair of shallow sockets *c''* for the reception of the bosses *a'* on the opposite sides of the head of the handle, and

through the jaws centrally within the sockets extend perforations *c'''* for the reception of the rivets B. The jaws C are also provided on their inner faces and near their opposite edges with studs *c⁴* for engaging the links of the chain.

When the jaws C are placed in position upon the opposite sides of the flattened or head portion of the handle with the bosses *a'* located in the sockets *c''*, that portion of the said jaws which is notched upon its opposite side projects beyond the head of the handle, leaving a free space between the jaws unobstructed from the points of the jaws down to the end of the handle-head, so that a chain may be freely swung from side to side through between them. The chain D, which I employ in connection with the jaws, is composed of a series of links, each provided with grooved projections *d* on their ends for engaging the studs *c⁴* on the jaws. The said chain is quite similar to that shown and described in my pending application, No. 339,789, and is not specifically claimed herein. The end of the handle-head A is bifurcated or provided with a narrow open slot E, which preferably projects to a depth about equal to the diameter of one of the bosses *a'*, and within said open slot one end of the chain D is secured by the jaw-retaining rivet B, which extends through the perforation in the end of one of its links. The end of the chain is thus permanently secured to the handle; but it has an engagement with the rivet sufficiently loose to allow it to be moved freely to the right or left thereon.

It will be observed that by the attachment of the end of the chain centrally between the jaws the chain may be swung to the right or the left with equal facility and the pipe brought into engagement with the teeth on either side, as may chance to be most convenient. It will further be observed that the wear upon the teeth upon the opposite sides of the jaws will thus naturally be about equal, and experience has proven that when two sets of teeth have become so worn as to impair the utility of the chain the chain itself will have become so worn as to require renewal, and hence a new wrench will be in demand. For

this reason I find it advantageous to permanently secure the jaws to the handle, preferably by riveting them thereto, as shown, and utilizing one of said fastening-rivets as the
5 pivotal support for the permanent attachment of the chain thereto. The manner of using a wrench as thus constructed is too well known to need particular description.

What I claim as my invention is—

- 10 The combination, with the handle provided with bosses projecting from its opposite sides and with a slot in its end, of toothed jaws provided with shallow sockets to receive said bosses on the opposite sides of the

handle, rivets extending through the jaws, 15 and bosses for permanently securing the jaws to the handle, and a holding-chain permanently secured within the slot in the end of the handle upon one of said fastening-rivets, and means for temporarily securing the free 20 end of the chain upon either side of the point of attachment of the chain to the handle, substantially as set forth.

GEORGE W. BUFFORD.

Witnesses:

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JOSEPH WILLIAMS.