

C. F. HULTGREN.
CHAIN WRENCH.

APPLICATION FILED FEB. 23, 1906.

Fig. 1.

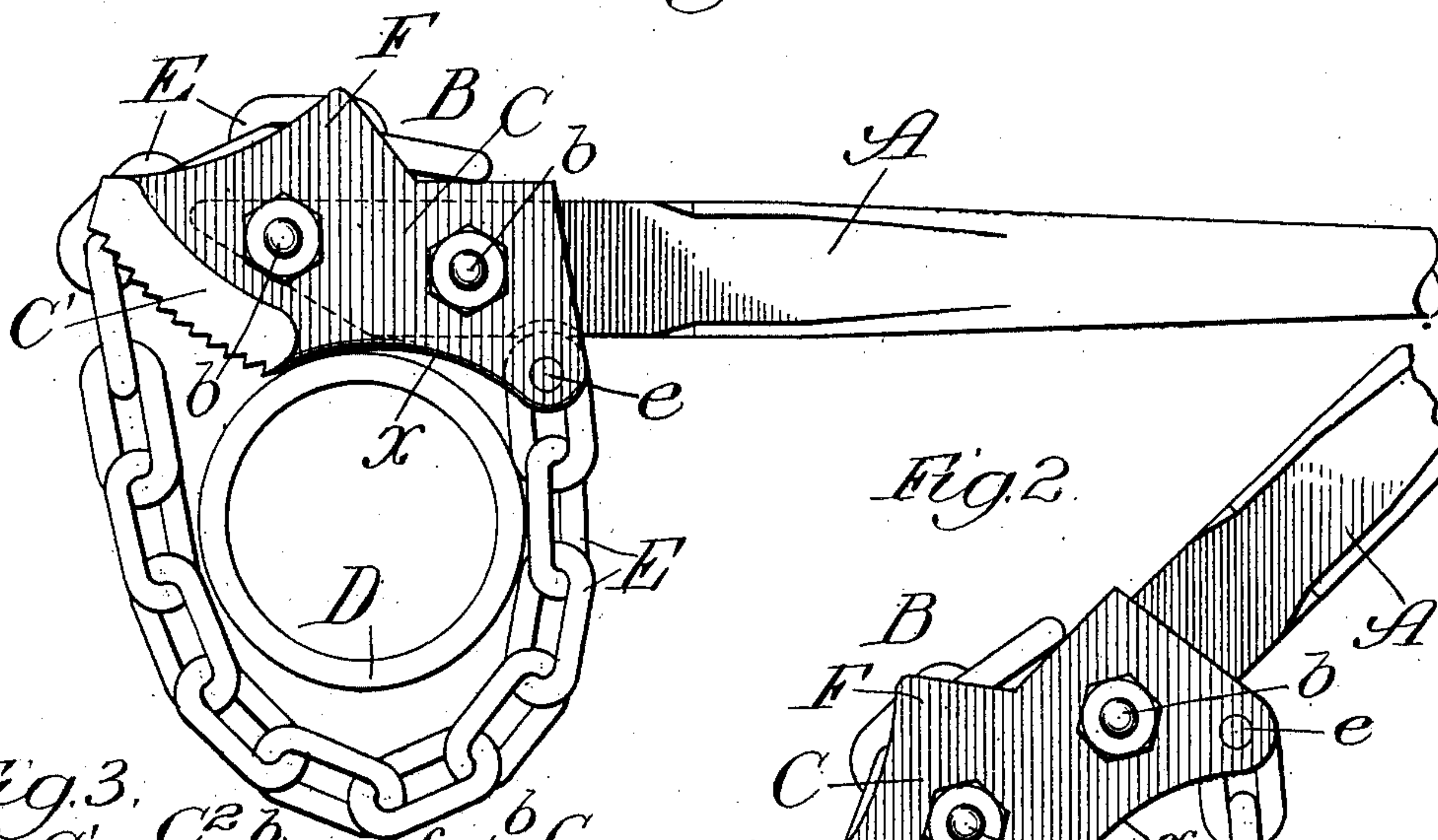


Fig. 2.

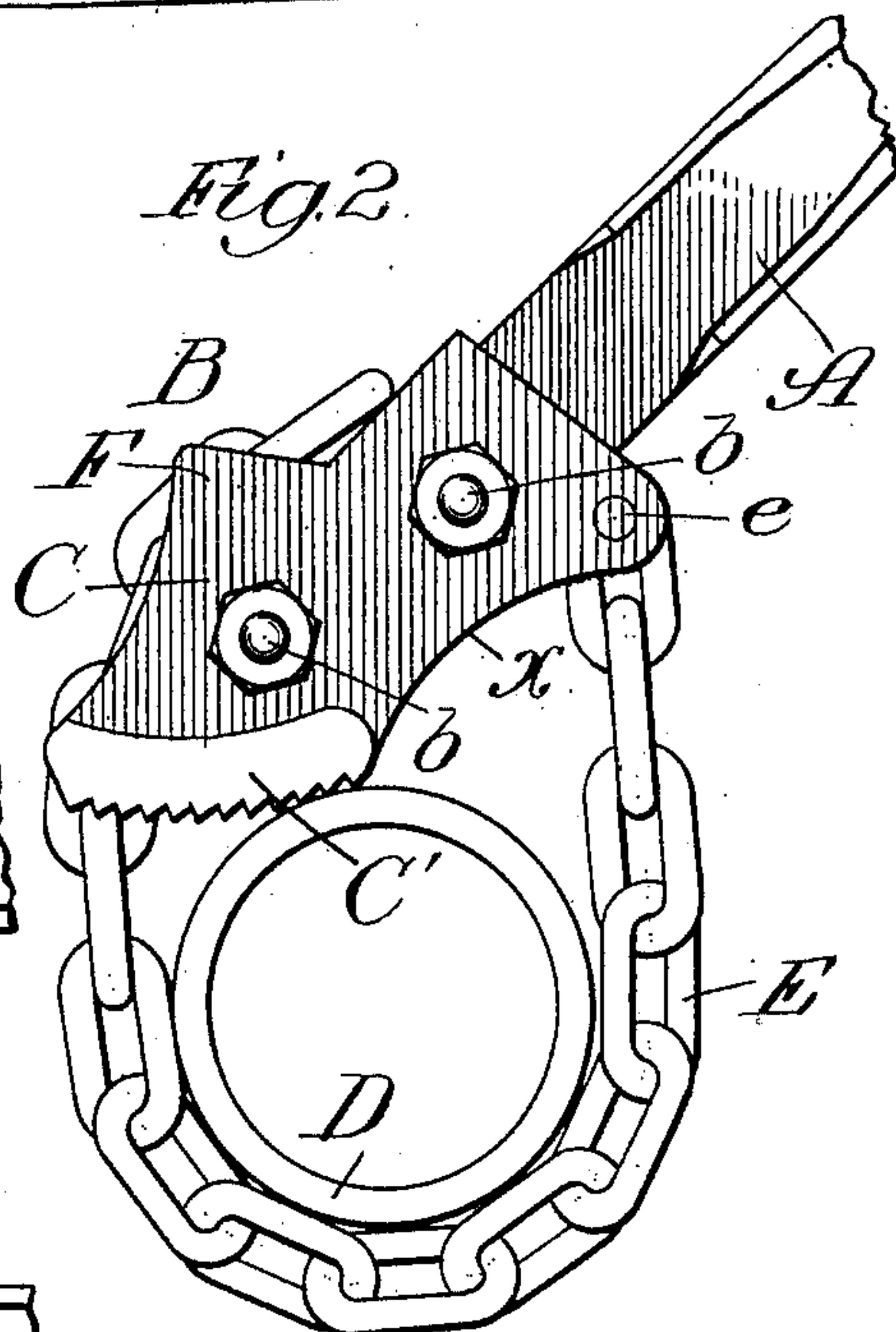


Fig. 3.

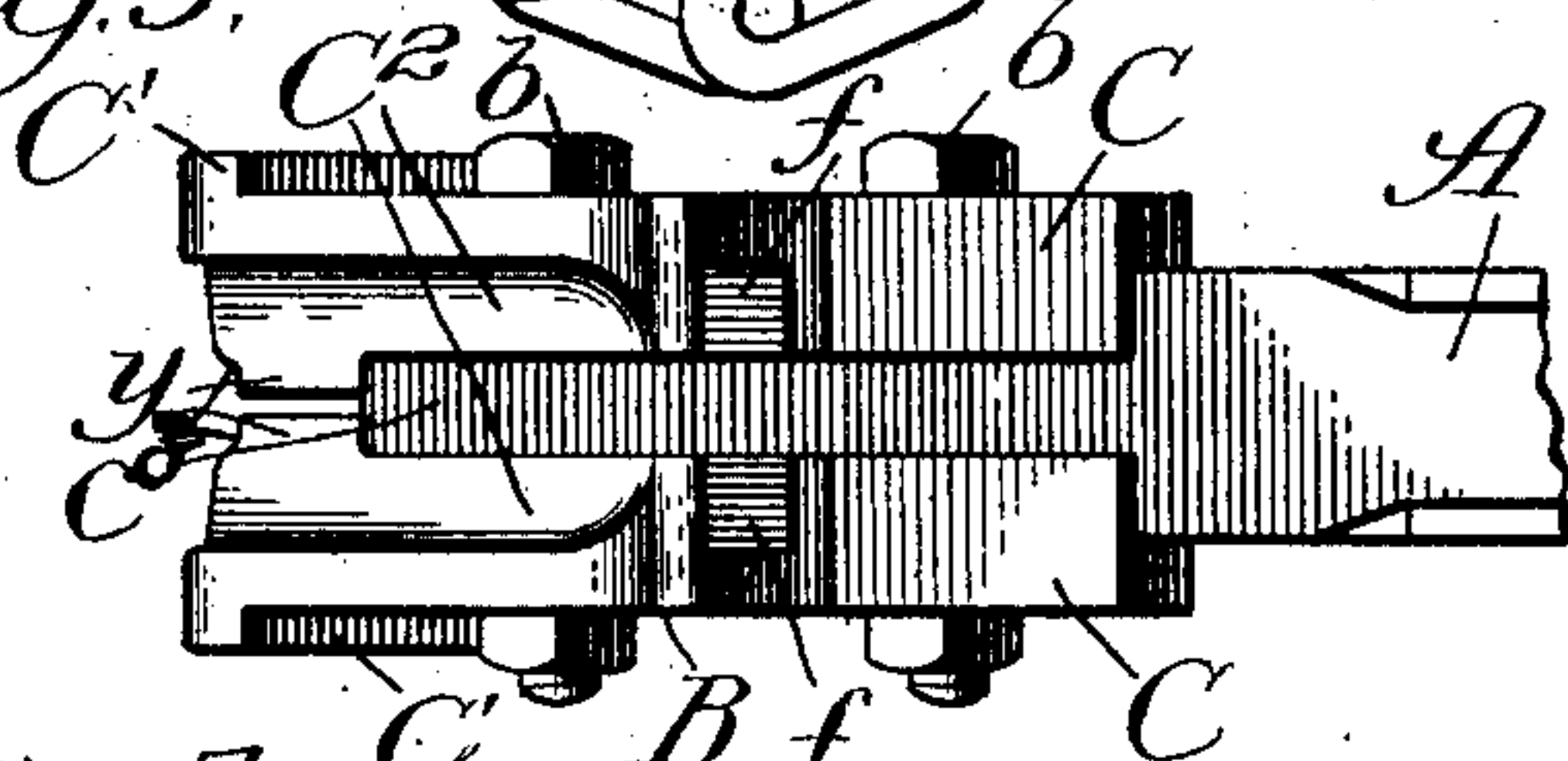


Fig. 4.

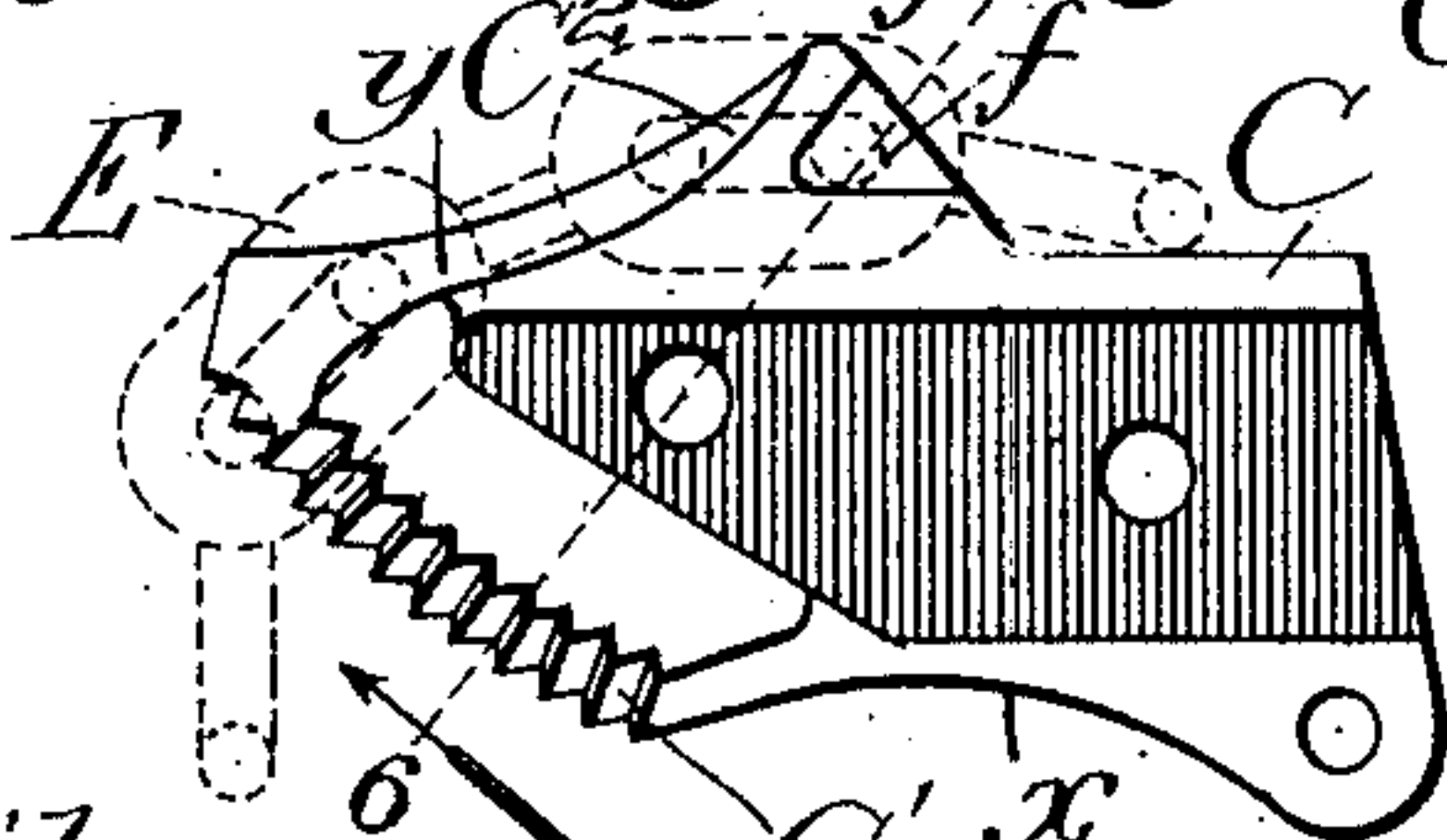
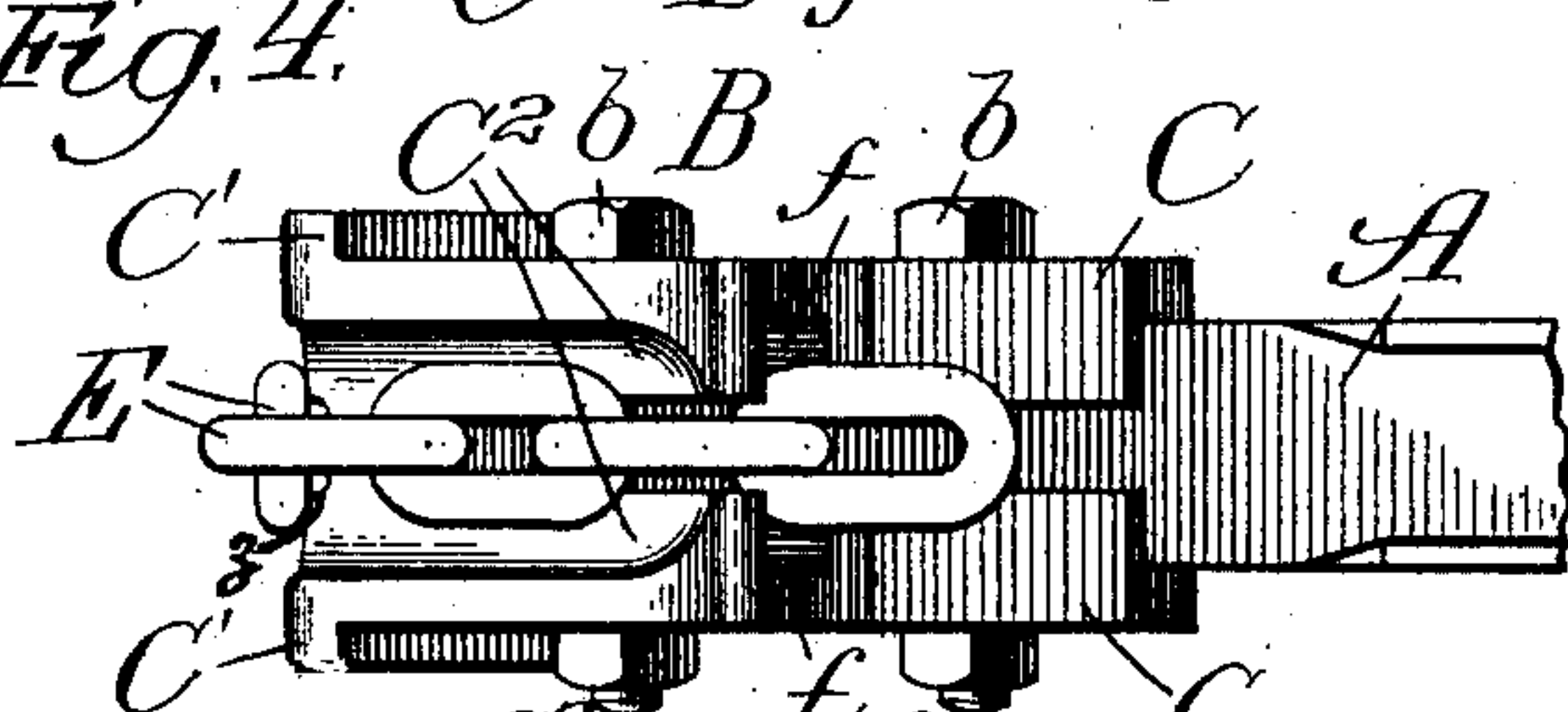


Fig. 5.

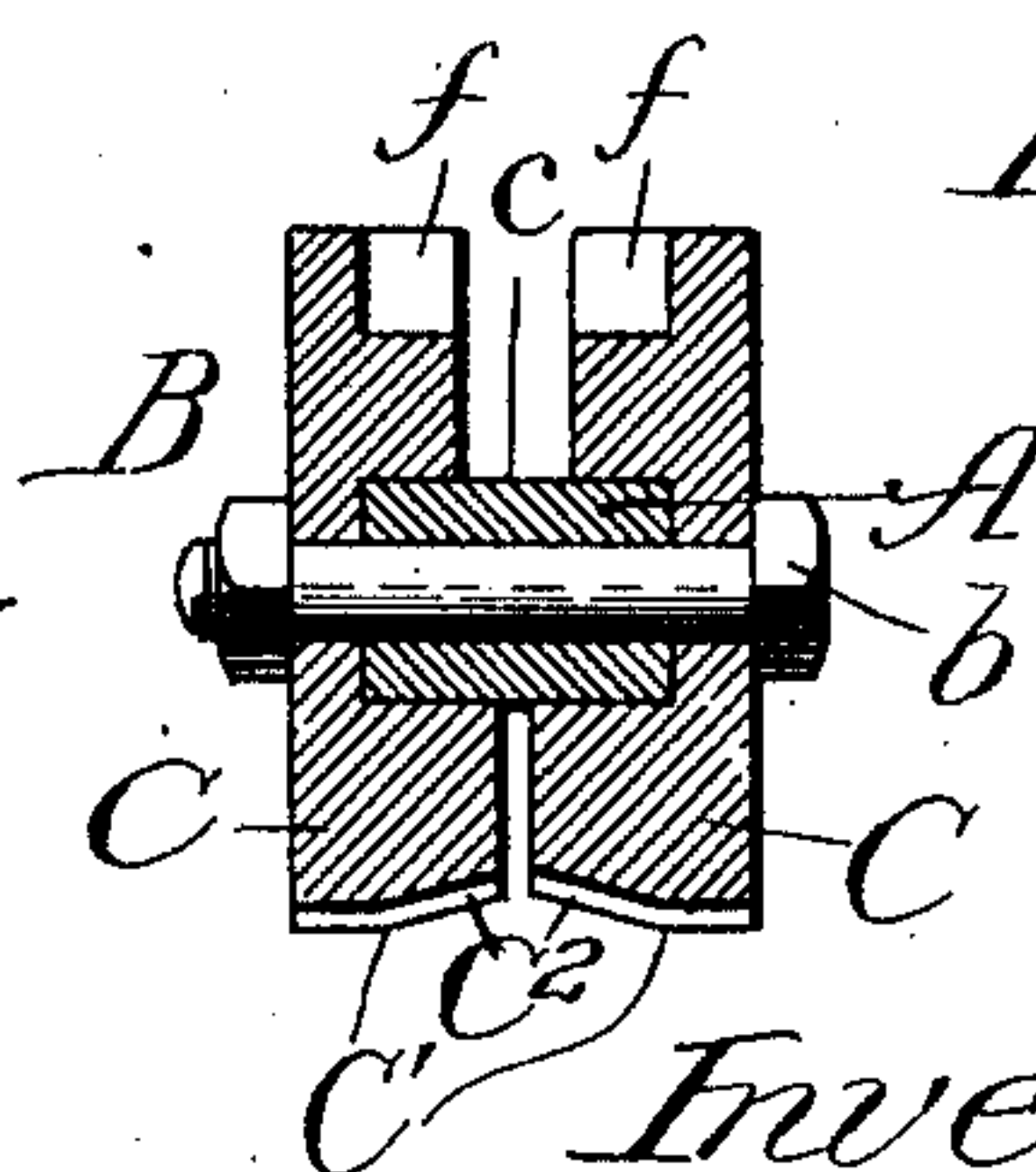


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES F. HULTGREN, OF CHICAGO, ILLINOIS.

CHAIN WRENCH.

No. 826,939.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed February 23, 1906. Serial No. 302,497.

To all whom it may concern:

Be it known that I, CHARLES F. HULTGREN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Chain Wrenches, of which the following is a specification.

My invention relates primarily to an improvement on the subject-matter of Patent No. 733,648, granted to me July 14, 1903, for chain tongs, though my present improvements are not necessarily limited to use with the particular construction for which that patent was granted.

One of my objects is to provide a construction whereby the slack of the chain in adjusting the wrench on the article to be gripped preparatory to operating the tool shall be taken up to the fullest possible extent, thereby to adapt the jaws to engage the article between their ends.

Another object is to provide a construction in which the free end of the chain may be readily disconnected from the wrench.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a broken view, in side elevation, representing my improved wrench as being seated in position on a pipe preparatory to the taking up of the slack; Fig. 2, a similar view showing the position of the wrench after the slack has been taken up; Fig. 3, a broken plan view of the head of the wrench; Fig. 4, a similar view showing the free end of the chain fastened on the head of the wrench; Fig. 5, a side view of one of the jaw-equipped head-forming members, showing a portion of the chain in dotted lines; and Fig. 6, a section taken through the head and handle at the line 6 on Fig. 5 and viewed in the direction of the arrow.

A is the operating-handle, provided at one end with a head B, preferably formed of two jaw-equipped plates or members C C, secured to the end of the handle, as by bolts b, each member C being provided at its outer end with an arc-shaped serrated jaw C'. The serrated surfaces of the jaws as represented are beveled to provide a channel C² of V shape in cross-section to enable the jaws to more firmly grip the crown of the head or flange of a pipe to be gripped. The under surface of the head B is concavely curved longitudinally, as represented at x in Figs. 1 and 2, at which curved portion the wrench is adapted to be seated upon the article to be

gripped, such as a pipe D, while the chain is being adjusted about it.

E is a chain permanently secured at one of its ends to the head B beyond the hollowed seat x and between the members C by a pin e passing through an end link, the other or free end of the chain being adapted to be releasably held in place on the head, as hereinafter described.

The upper surface of the head B is provided with a longitudinal channel c, formed between the members C, which receives the vertically-extending links of the free end of the chain E for alining it when the free end of the latter is secured to the head.

An ear F is provided on the upper portion of each member C, in the rear walls of which corresponding recesses f are provided for receiving and releasably securing in place any one of the links in the free end of the chain. The outer end or nose portion of the head is recessed, as shown at z, and the upper forward surfaces of the members C are grooved, as shown at y, and terminate on the front surfaces of the ears in cam-guides C², adjacent to the recesses.

To apply the wrench to an article to be gripped, such as a pipe D, the head B is applied at its concave seat x upon the pipe and the free end of the chain is adjusted about the pipe and over the outer end of the head, the chain being separably secured in place on the head by inserting the proper link into the recesses f. Assuming the wrench to be applied to the pipe D, as shown, the handle is then raised to take up the slack in the chain and to bring the serrated jaws C' into engagement with the pipe, as shown in Fig. 2. To release the wrench, the handle is lowered, thereby producing slack in the chain and permitting the link confined in the recesses f to be withdrawn longitudinally therefrom in the direction toward the rear end of the jaws, the cams C² serving to raise the confined link and carry it out of the recesses by pulling upon the end of the chain.

It will be seen that by providing the under surface of the head with a concave seating-surface with the chain depending from the extreme rear end of the latter the amount of slack which must be taken up in clamping the wrench is much less and shorter grip is attainable than in those devices in which no such seat is provided and in which the chain is passed backwardly in encircling the pipe with it. It is also manifest that the pro-

vision of a cam-surface forward of the link-confining recesses *f* serves to facilitate the releasing of the free end of the chain from the head.

5 A further useful function of the grooves *y* is to guide the free end of the chain in adjusting it upon the head to cause the link adjacent to the recesses to be automatically moved into position opposite thereto, thus
10 to facilitate the introduction of the link into the recesses.

By providing a recess in the nose of the head for receiving the chain the depending portions of the latter after the chain has
15 been adjusted about the pipe and on the head are approximately parallel with each other, thereby, in conjunction with the curved seating-surface, reducing to the minimum the amount of slack to be taken up, and thus
20 permitting the operator to grip a pipe at any point on the jaw.

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

1. A chain wrench comprising, in combination, an operating-handle, a jaw provided
25 with a recess in its outer end, and a chain adapted to encircle an article to be gripped and to cooperate with said jaw in the gripping operation, said wrench being provided
30 with a concave seat on its under side and said chain being fastened at the rear end of said seat.

2. A chain wrench comprising, in combination, an operating-handle, a head on said
35 handle having a recess in its outer end and provided with a jaw, and a chain secured at one end on said head and adapted to encircle an article to be gripped and to cooperate with said jaw in the gripping operation, the under
40 side of said head being provided with a concave seat intermediate said jaw and the point of attachment of said chain to the head.

3. A chain wrench comprising, in combination, an operating-handle, a head on one
45 end of the handle having a recess in its outer end and provided with a serrated jaw having a serrated channel in its clamping-surface, and a chain secured to said head and adapted

to encircle an article to be gripped and to cooperate with said jaw in the gripping operation, said head being provided on its under surface intermediate said jaw and the point of attachment of the chain to the head, with a concave seat.

4. A chain wrench comprising, in combination, an operating-handle, a head on said
55 handle having a recess in its outer end and provided with a jaw, a chain secured at one end on said head, a recess in said head adapted to receive and releasably hold therein the
60 free end of the chain, and a cam-guide on said head adjacent to said recess and adapted to release the chain, for the purpose set forth.

5. A chain wrench comprising, in combination, an operating-handle, a head on said
65 handle having a recess on its outer end and comprising a pair of jaw-equipped members provided on their upper portions with ears having link-receiving recesses in their rear ends, the upper forward surfaces of said
70 members being grooved and provided with cam-guides adjacent to said recesses, and a chain secured at one end on said head and having the links at its free end adapted to enter and be releasably held in said recesses,
75 said guides being adapted to be engaged by the chain, for the purpose set forth.

6. A chain wrench comprising, in combination, an operating-handle, a head on said
80 handle having a recess in its outer end and comprising a pair of jaw-equipped members, separated from each other along their upper portions to form between them a channel and provided on their upper portions with ears
85 containing recesses in the rear ends, the upper forward surfaces of said members being grooved and each terminating in a cam-guide adjacent to said recesses, and a chain secured at one end to the head and having the links of its free end adapted to be inserted into
90 said channel and grooves and into said recesses, for the purpose set forth.

CHARLES F. HULTGREN.

In presence of—

J. H. LANDES,

G. A. CHRITTON.