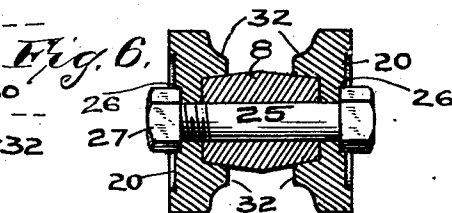
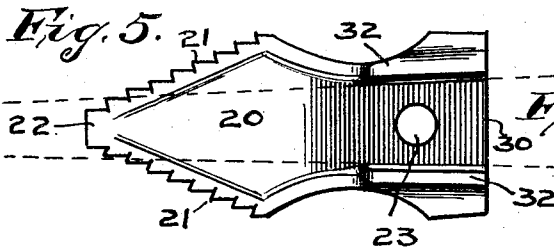
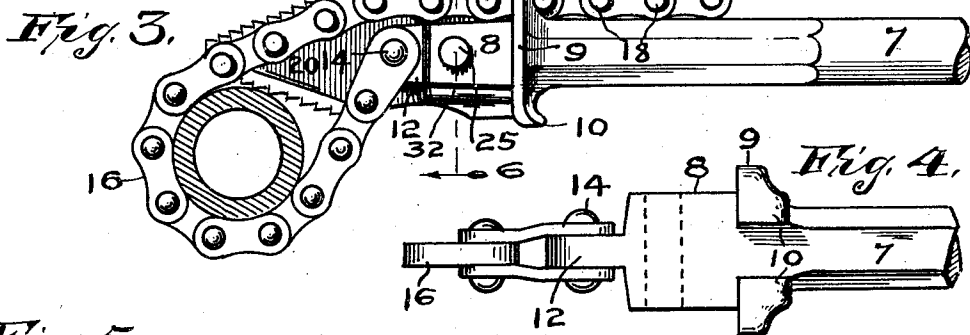
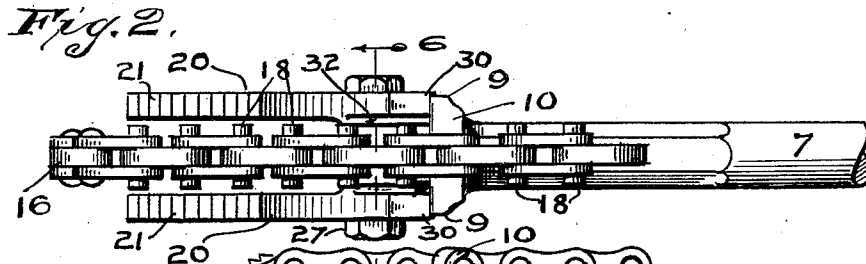
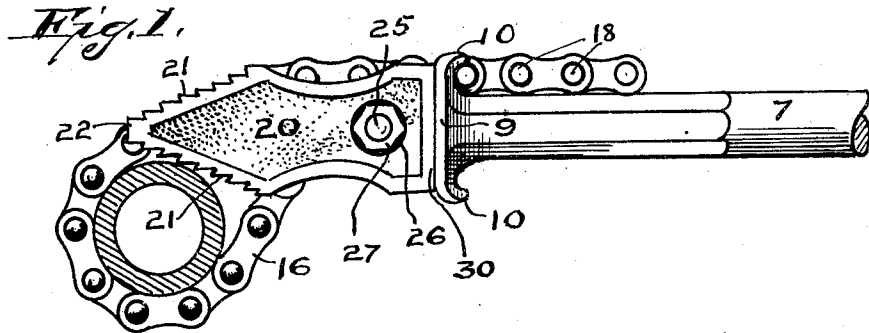


C. E. BONNER.
CHAIN WRENCH.
APPLICATION FILED DEC. 15, 1908.

937,917.

Patented Oct. 26, 1909.



WITNESSES:
G. B. Moerner
E. E. Miller

INVENTOR:
Clarence H. Bonner,
By Minturn & Wornex,
Attorneys.

UNITED STATES PATENT OFFICE.

CLARENCE E. BONNER, OF CHRISMAN, ILLINOIS, ASSIGNOR TO C. E. BONNER MANUFACTURING COMPANY, OF CHRISMAN, ILLINOIS, A CORPORATION OF ILLINOIS.

CHAIN WRENCH.

937,917.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed December 15, 1908. Serial No. 467,662.

To all whom it may concern:

Be it known that I, CLARENCE E. BONNER, a citizen of the United States, residing at Chrisman, in the county of Edgar and State of Illinois, have invented certain new and useful Improvements 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 body of the wrench, the object of the present invention being to make the notched jaws removable and therefore renewable and to make the attachment of the chain to the body of the wrench and not to the removable jaw.

The object also is to render the wrench more durable in other respects and to provide a simple and cheaply constructed tool.

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

In the accompanying drawings, Figure 1 represents the wrench in side elevation in engagement with a pipe. Fig. 2 is a view in front elevation of the same. Fig. 3 is a view in side elevation as in Fig. 1, except that one of the jaws is removed. Fig. 4 is a detached view of the end of the handle at the point where the jaws are secured showing a portion of the flexible chain secured thereto. Fig. 5 is a detached inside view of one of the jaws, and Fig. 6 is a transverse section on the line 6 of Fig. 2.

Like characters of reference indicate like parts throughout the several views.

7 represents the handle of the wrench which terminates at one end in a head 8 which is hexagonal in cross section. Projecting laterally and transversely of the sides of the portion or head 8, at diametrically opposite sides thereof, and at the junction between the head 8 and body 7 are the flanges 9 which project at their ends beyond said head and body to form hooks 10 which are in pairs with spaces between said pairs for the insertion therebetween of the flexible chain. The outer end of the head 8 is provided with an integral flange 12 having a transverse hole to receive a rivet 14 by means of which the flexible chain 16 is attached. The links of this flexible chain are connected by rivets and those rivets 18 uniting those links at

the outer end of the chain have their ends extended as shown in Fig. 2 to engage a pair of the hooks 10 and prevent a withdrawal or movement of the chain between said hooks in the direction of the head 8.

The jaws are represented by 20, and in the present form of my invention each jaw is provided with a series of teeth 21 on its opposite oblique edges, the said series of teeth gradually approaching each other toward the outer end 22 of the jaw and through the jaws extend perforations 23 for the reception of a bolt 25. This bolt 25 also passes through a suitable hole in the head 8. The jaws are provided with indentations or recesses 26 on their outer faces to receive the head of bolt 25 on one side and nut 27, on the other side, which nut is screw threaded to receive the correspondingly threaded end of bolt 25 whereby, by tightening the nut upon the bolt, the jaws 20 will be drawn firmly against the head 8. The rear ends 30 of the jaws fit squarely and firmly against the flanges 9, said flanges forming shoulders to receive the strain on the jaws. Applicant by his construction as thus far described, is able to make quick application of his tool to the work in hand, and particularly, he is able to rely upon comparatively light hooks 10, because they are braced under strain by the jaws 20 and the pressure on said jaws is directly opposed to the strain on the hooks, whereby a counter action or balance of strain is secured. The inner faces of the jaws 20 adjacent the head 8 are provided with flanges 32. These flanges 32 extend longitudinally and obliquely of the jaws, as clearly shown by the dotted lines in Fig. 5, and their adjacent faces are also oblique to each other as clearly shown in Fig. 6 to fit the correspondingly oblique faces of the head 8. The head 8 as shown in Fig. 6 is thickest at its longitudinal middle whereby when the oblique faces of the flanges 32 are drawn upon said head by bolt 25 and nut 27, all looseness and lost motion will be obviated. The head 8 is made to taper toward its outer end to correspond with the oblique longitudinal relation of the flanges 32. By this construction all backward tendency of jaws 20, under strain, wedges the jaws more firmly upon the head 8 causing the strain to be distributed over said head and the flanges 9 are thereby proportionately relieved. This construction ad-

ditionally prevents looseness and lost motion between the jaws and head and keeps the structure from working loose by use. The chain 16 is capable of being wrapped
 5 around a pipe or other object, on either side of the jaws 20 so as to bring into use either set of teeth 21, and a double pair of hooks 10, situated diametrically opposite each other as shown, are provided to engage and
 10 hold the pin extensions 18 of the chain, when the chain is used on either side of jaws 20.

Having thus fully described my invention what I claim as new and wish to secure by Letters Patent, is—

15 1. In a chain-wrench, a handle, a head integral therewith having parallel flat sides and flanges transversely of said sides at their junction with the handle forming shoulders to receive the strain on the jaw-
 20 plates, the ends of said flanges extending beyond the head and handle to form chain-holding hooks, jaw-plates with serrated edges removably secured to said parallel sides of the head with their inner ends in
 25 contact with said respective flanges whereby the strain on the jaws is relieved and the hook portions of the flanges are braced by said jaw-plates, a chain attached to the outer
 30 end of said head and pivot-pins connecting the links of said chain, the ends of said pins adapted to engage with said holding hooks.

2. In a chain-wrench, a handle, a head integral therewith having parallel flat sides and flanges transversely of said sides at
 35 their junction with the handle forming shoulders to receive the strain on the jaw-plates the ends of said flanges extending beyond the head and handle to form chain-holding hooks the sides of said head opposite said parallel sides converging in the direction of the outer end of the head, jaw-
 40 plates with serrated edges bolted to said parallel sides of the head with their inner ends

contacting with the respective flanges of the head whereby the strain on the jaws is re- 45
 lieved and the hook portions of the flanges are braced by said jaw-plates, said jaw-plates each having a pair of oblique flanges to receive said tapering head and to make a close fit therewith, a chain attached to the
 50 outer end of said head and pivot-pins connecting the links of said chain, the ends of said pins projecting from the chain and being adapted to engage with the hooks of the head.

55 3. In a chain-wrench, a handle, a head integral therewith hexagonal in cross-section with two parallel sides and the other sides in oblique pairs converging longitudinally toward the outer end of the head, the two
 60 parallel sides having transverse flanges at their junction with the handle, the ends of said flanges extending beyond the head to form chain-holding hooks, serrated jaw-plates bolted to the parallel sides of the head
 65 with their inner ends contacting with respective flanges of the head, each of said jaw-plates having a pair of longitudinally oblique flanges on their inner sides to closely embrace said longitudinally tapering head
 70 and the adjacent walls of each pair of jaw-plate flanges being oblique to conform to the hexagonal shape in cross-section of the head, a chain attached to the outer end of
 75 said head and pivot-pins connecting the links of said chain, the ends of said pins projecting from the chain adapting them to engage with the hooks of the head.

In witness whereof, I have hereunto set my hand and seal at Chrisman, Illinois, this
 27th day of November, A. D. one thousand
 80 nine hundred and eight.

CLARENCE E. BONNER. [L. S.]

Witnesses:

M. CHAMBERS,
 JAMES HOULT.