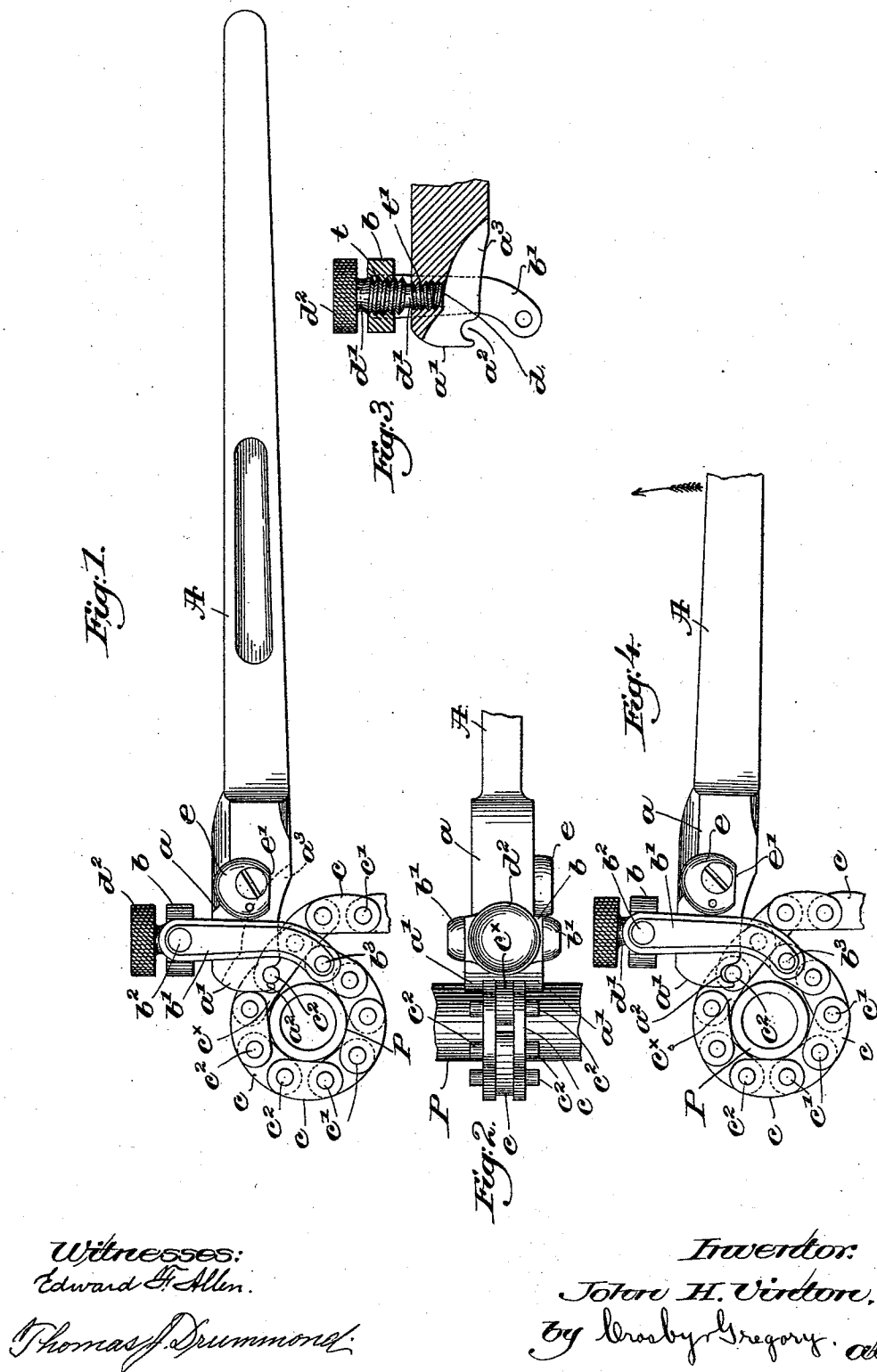


(No Model.)

J. H. VINTON.
CHAIN WRENCH.

No. 536,553.

Patented Mar. 26, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

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CHAIN WRENCH.

SPECIFICATION forming part of Letters Patent No. 536,553, dated March 26, 1895.

Application filed July 27, 1894. Serial No. 518, 711. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. VINTON, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Chain Wrenches, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to that class of wrenches wherein one end of a chain is connected to a suitable handle provided with means to hold the free end of the chain at certain points, the chain surrounding the pipe to be turned.

While pipes or tubes are supposedly made of standard diameters, they will at times vary from a standard size, and as the points on the chain to be engaged by the handle are fixed, an ordinary wrench will not hold when applied to odd sizes.

This invention has for its object the production of a very strong and durable chain wrench adapted to grasp and hold pipes or tubing of standard or irregular sizes, the faces of the links forming the chain being made as plane surfaces, to avoid marring the pipe or tube by scraping or indenting its surface.

My invention consists essentially of a wrench comprehending a handle, its head provided with ears having open notches facing the anchor link of the chain, a stirrup pivotally mounted at the opposite side of and embracing the head and through which the free end of the chain is passed, and a chain pivoted to the stirrup and provided with lateral projections at the joints of some of the links, the free end of the chain passing between and being guided by said ears when the notches therein engage a pair of the lateral projections on the chain, to operate, substantially as and for the purposes hereinafter described.

Other features of my invention will be hereinafter described and particularly pointed out in the claims.

Figure 1 shows in side elevation a wrench embodying my invention, applied to and gripping a pipe, Fig. 2 is a top or plan view of a portion of the apparatus shown in Fig. 1. Fig. 3 is a longitudinal sectional view of the head, showing the adjustable stirrup support, and Fig. 4 is a side elevation of the head end of

the wrench applied to and before gripping a pipe.

The handle or hand-piece A of any desired construction is enlarged at one end to form a head *a*, provided at its sides with ears *a'* having open notches *a²* therein, facing the anchor link of the chain, to be described.

At the under side of the head I preferably make an open longitudinal slot or recess *a³*, see dotted lines Fig. 1 and full lines Fig. 3, the slot extending through the outer end of the head and between the ears *a'*.

I mount a stirrup on the wrench head at the opposite side thereof, said stirrup consisting of a top *b* and like side pieces *b'* pivoted thereto at *b²* and depending at each side of and to embrace the head, the side pieces *b'* being of such length as to permit movement of the head *a* within it and upons the pivots *b²* as a center.

One end of a chain composed of a series of short metallic links *c*, jointed together by suitable pins *c'* and *c²*, and adapted to be passed around the pipe or tube to be handled is pivoted at *b³* to the free end of the stirrup, the opening between the head *a* and the pivoted end of the chain being wide enough to permit the passage of the free end of said chain therethrough, as shown in Figs. 1 and 4. Some of the pins, as *c²*, of the chain are extended laterally beyond the sides thereof to form oppositely located pairs of projections to be readily engaged by the notched ears *a'*, the slot or recess *a³* in the head being wide enough to receive and guide the free end of the chain as it is drawn about the pipe.

A threaded opening *d* is made in the head *a*, see Fig. 3, to receive a right and left screw *d'*, provided with a suitable milled or other head *d²*, one of the threaded portions of the screw, as *t*, passing through an internally threaded opening in the top *b* of the stirrup, so that the latter is adjustably mounted on the head. By using such a screw the movement of the stirrup toward or from the head is increased relative to the movement of the screw itself, and the portion *t'* in the head can be made so short as not to interfere with the other parts of the wrench.

In operation the chain is passed around the pipe P, and the free end of the chain is passed

through the stirrup and drawn about the pipe until the notches a^2 of the ears a' engage the projecting ends of one of the pins or pivots c^2 , as shown in Fig. 4, the longitudinal axis of the handle intersecting the plane of the stirrup at an angle slightly greater than a right angle, the screw d' being turned, if necessary, in one or the other direction until a very slight movement of the handle A in the direction of the arrow Fig. 4, will cause the head to act on the link, as c^x , just beyond the head and force the smooth inner face of the said link firmly and substantially immovably against the pipe, thus making an anchor of it, further or continued movement of the handle A in the same direction causing the stirrup to be lifted, to thereby pull the links of the chain between it and the anchored link firmly about and to grip the pipe, so that the pipe will be turned in the well known manner.

The pivots b^2 and b^3 , and the projection or pin c^3 engaged by the notched ears act as the three pivotal points of a toggle joint, and the more nearly said three points approach a straight line the greater is the power with which the chain hugs the pipe.

By referring to Figs. 1, 2 and 4, it will be seen that the strain exerted on the stirrup is in the direction of its length, and consequently longitudinally of the adjustable stirrup support or screw d' , so that a screw of moderate diameter is strong enough to support the strain. The adjustment of the stirrup by the screw d' , as described, enables the wrench to handle a pipe or tube of any diameter within its range, it being understood that the projecting pins c^2 are located with regard to standard diameters.

The inner faces or edges of the links c are made as plane surfaces so that they will be tangential to the pipe, the thickness of the links preventing cutting or denting of the pipe or tube, and if desired the plane surfaces of the links may be highly polished, to still further prevent marring.

My invention is not limited to the number of links in the chain, either as regards length or breadth thereof, the latter being restricted only by the width of the slot a^3 in the head, which guides the links.

It is frequently desirable to prevent the wrench from releasing its hold on the chain, and I have provided for this purpose a locking device for the stirrup, shown as a cam e pivoted to the side of the wrench head, and adapted to be turned to bring one or another point of its irregular periphery opposite one of the side pieces b' of the stirrup, as in Figs. 1 and 4.

When the handle A is released it will slacken the chain sufficiently to permit the wrench to slide around the pipe until the handle hangs beneath it, but the cam e bearing against the side of the stirrup prevents the head from being drawn up by the weight of the parts sufficiently to let the projections c^2 slip out of the notches a^2 to release the chain.

When the wrench is to be removed the cam is turned until the flat part e' is brought opposite the stirrup, when the head can be moved forward to release the projections c^2 from the notched ears.

I claim—

1. A wrench comprehending a handle, a head thereon provided with ears having open notches facing the anchor link of the chain, a stirrup pivotally mounted at the opposite side of and embracing the head and through which the free end of the chain is passed, and a chain pivoted to the stirrup and provided with lateral projections at the joints of some of the links, the free end of the chain passing between and being guided by said ears when the notches therein engage a pair of the lateral projections on the chain, whereby the movement of the handle to tighten the chain anchors the link engaged by the ears against the pipe, further movement of the handle in the same direction acting to draw the portion of the chain between the stirrup and the anchored link firmly and closely about and so as to turn the pipe, substantially as described.

2. A wrench comprehending a handle, a head thereon having an open slot therein facing the anchor link of the chain and also provided with notched ears, a stirrup embracing the head and pivotally mounted on a support adjustable toward and from the opposite side of the head, a chain pivoted to the stirrup and through which the free end of the said chain is passed, and lateral projections at the joints of some of the links, the free end of the chain passing through said slot when the notched ears engage a pair of the lateral projections on the chain, whereby the movement of the handle to tighten the chain anchors the link engaged by the ears against the pipe, adjustment of the stirrup moving the pivoted end of the chain toward or from the head according to the size of the pipe, substantially as described.

3. A wrench comprehending a handle, a head thereon provided with ears having open notches facing the anchor link of the chain, a headed right and left screw in the opposite side of the head, a stirrup pivotally mounted on one of the threaded portions of said screw and embracing the head, a chain pivoted to the outer end of the stirrup and through which its free end is passed, and laterally extended pivots for some of the links, to be engaged by the notched ears of the head, the free end of the chain passing between and being guided by the ears, rotation of the right and left screw rapidly adjusting the chain to the pipe, whereby movement of the handle to tighten the chain anchors the link engaged by the ears against the pipe, further movement of the handle in the same direction acting to draw the chain firmly and closely about the pipe, substantially as described.

4. A wrench comprehending a handle, a head thereon provided with ears having open notches facing the anchor link of the chain,

a stirrup pivotally mounted at the opposite side of and embracing the head and through which the free end of the chain is passed, a locking device to co-operate with the stirrup
5 and prevent release of the chain by the said ears, and a chain pivoted to the stirrup and provided with lateral projections at the joints of some of the links, whereby when the free
10 end of the chain is passed through the stirrup and between it and the head the notched ears

will engage a pair of said lateral projections on the chain, to tighten the chain about a pipe, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of 15 two subscribing witnesses.

JOHN H. VINTON.

Witnesses:

JOHN C. EDWARDS,
AUGUSTA E. DEAN.