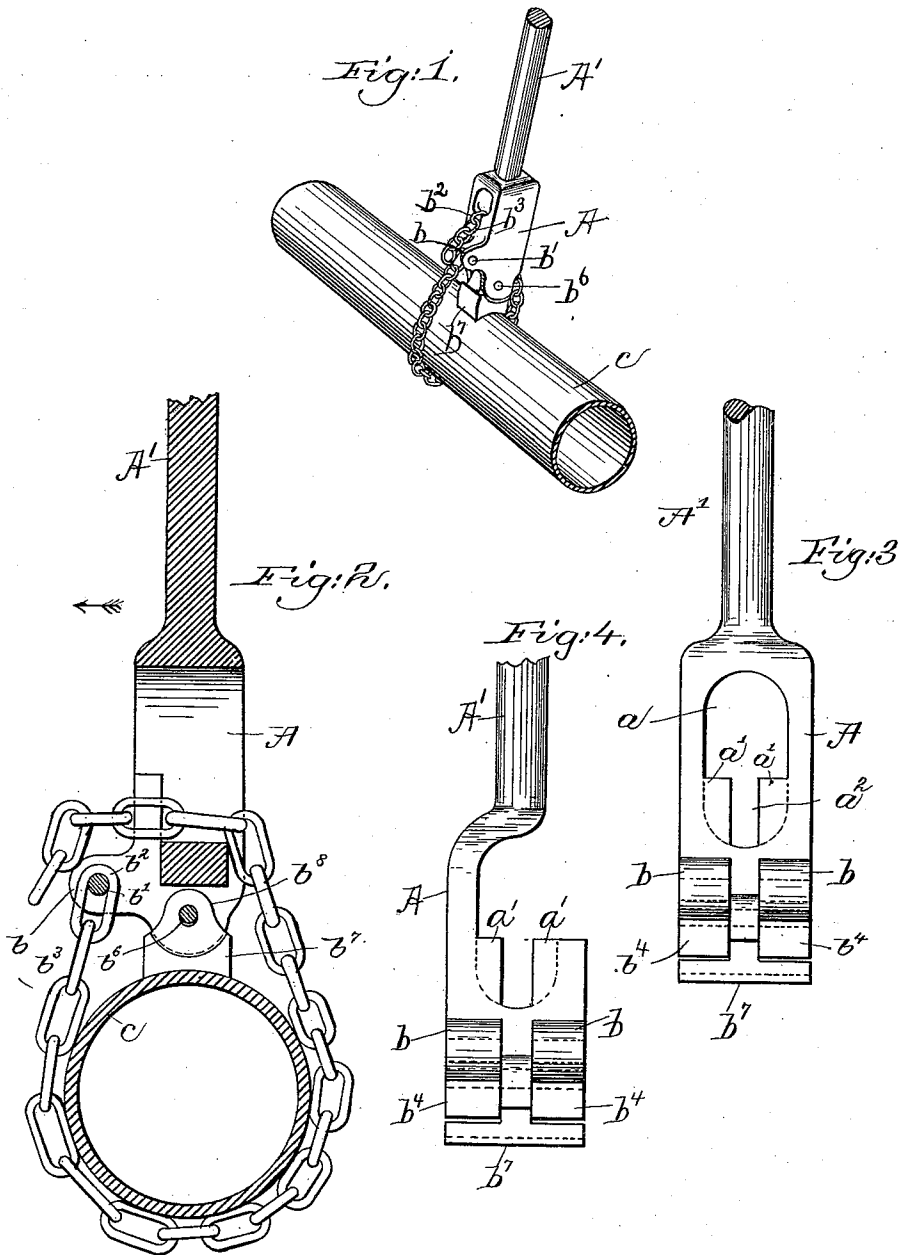


(No Model.)

A. C. WHITTIER.
CHAIN WRENCH.

No. 464,167.

Patented Dec. 1, 1891.



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UNITED STATES PATENT OFFICE.

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CHAIN-WRENCH.

SPECIFICATION forming part of Letters Patent No. 464,167, dated December 1, 1891.

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To all whom it may concern.

Be it known that I, ABEL C. WHITTIER, of Boston, county of Suffolk, and 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 wrenches of that class known as "chain" or "tong" wrenches, and has for its object to provide an efficient, simple, and cheap wrench of the class referred to.

In accordance with my invention the chain portion of the wrench, preferably composed of a series of substantially oblong or elongated links welded or otherwise joined together, after the manner of an ordinary chain—that is, a plane longitudinally through one link is substantially at a right angle to a plane longitudinally through a link connected to the first link—is secured to the back or under side of a head provided with holding lugs or ears, preferably also located for the best results at the back or under side of the said head. The holding-lugs form a passage of sufficient width to permit of the entrance between them of a link longitudinally, but not transversely, so that when one link is passed longitudinally between the said holding-lugs the next adjacent link behind the lugs bears against the said lugs and causes the chain to grip the pipe or other cylindrical object to be turned. The head referred to has loosely pivoted to its front end a shoe or bearing-surface provided with a preferably smooth concave face or surface to bear upon the pipe. The head has secured to it a handle, preferably cast integral with it, and for the best results the said handle is in a line with the chain, so that in operation the strain upon the parts is in practically the same line or direction.

The particular features of my invention will be pointed out in the claims at the end of this specification.

Figure 1 represents a chain-wrench embodying my invention in operative position upon a pipe, the handle of the wrench being broken off. Fig. 2 is a longitudinal section, on an enlarged scale, of the wrench and pipe shown in Fig. 1; Fig. 3, a top or plan view of

the head of the wrench and its attached shoe, the chain being omitted; and Fig. 4, a modification to be referred to.

A represents one form of head of my improved wrench, which may be made of steel or other suitable metal, and which preferably has cast integral with it a handle A'. The head A, as represented in Figs. 1 and 3, is provided with an enlarged opening or passage *a*, within which are located lugs or ears *a'*, secured to or forming part of the opposite walls or sides of the head, preferably at or near the back or under side of the said head, the said lugs or ears being separated by a space or passage *a*² and constituting chain-holding portions of the wrench, for a purpose as will be described. The head A, near its forward end, as herein shown, has extended from its rear side lugs or projections *b*, through which is inserted a pin *b'*, serving to secure the chain to the head. The chain is preferably composed of longitudinal links *b*² and transverse links *b*³, a longitudinal link embracing the pin or stud *b'* between the projections or lugs *b*. The head A of the wrench is also provided at its front end, as shown, with lugs or ears *b*⁴, to which is secured, by a pin *b*⁶, a bearing-shoe *b*⁷, having a shank or projection *b*⁸ extended between the ears or lugs *b*⁴, the pin *b*⁶ being extended through substantially the longitudinal center of the shoe and of the head of the wrench. The bearing-shoe *b*⁷ is for the best results provided with a smooth concave face, as herein shown, to fit a pipe *c* or other cylindrical object to be operated upon by the wrench, so that the wrench may be used with finished pipes without danger of marring or injuring the same. The lugs or ears *b*⁴ are made rounding, or in the arc of a circle, as represented in Figs. 2 and 3, and the rear side of the bearing-shoe *b*⁷ is shaped to conform to the rounded or circular shape of the said lugs, so as to rest or bear firmly against the lugs when the wrench is being operated. The pin *b*⁶ is extended loosely through the shank or projection *b*⁸ of the bearing-shoe and merely acts to attach the said shoe to the head of the wrench. In operation the chain is passed about the pipe, so as to encircle the same, and with the wrench of the construction shown in Figs. 1 and 3 the loose end of the chain is

passed down through the slot a of the wrench, and after the chain has been brought substantially taut around the pipe a longitudinal link b^2 is passed between the holding-lugs a' , and the transverse link b^3 behind the lugs a' bears against the under side of the lugs and firmly holds and locks the chain in position upon the pipe, so that when the handle is moved in the direction indicated by arrow 20, Fig. 2, the pipe is firmly gripped between the chain and the bearing-shoe and is turned. The handle A of the wrench is in substantially the same line with the chain, so that when the wrench is being operated the strains exerted upon the wrench are practically in one and the same line.

I may prefer to provide the head A of the wrench with two side walls, forming the opening a ; but I do not desire to limit my invention in this respect, as it is evident that one of the said side walls may be omitted or slotted, substantially as shown in Fig. 4. When the head of the wrench is provided with one side wall, as shown in Fig. 4, I prefer to offset the handle A' from the wall or portion of the head to which it is secured, so that the said handle will come substantially in line with the chain. In practice I prefer to cast the head and its lugs or ears together with the handle in one piece. I prefer to employ two holding-lugs, as herein shown; but it may be found desirable to utilize a portion of the head as a holding lug or portion, and by the term "holding portions" employed in the claims I mean to embrace such construction.

I claim—

1. In a chain-wrench, the combination, with a head provided with holding-lugs a' and with substantially circular lugs or ears b^4 at its front end, of a bearing-shoe circularly

shaped on its rear side to conform to the shape of the lugs or ears b^4 and provided with a shank b^8 , extended between the lugs or ears b^4 , and a chain secured to the head and adapted to engage the holding-lugs, substantially as described.

2. In a chain-wrench, the combination, with a head provided with holding-lugs a' integral therewith and with substantially circular lugs or ears b^4 at its front end integral with the said head, of a bearing-shoe b^7 , provided with a shank b^8 , extended between the lugs or ears b^4 and having its rear side circularly shaped to conform to the shape of the lugs or ears b^4 and provided on its front with a smooth concave bearing-face, and a chain secured to the head and adapted to engage the said holding-lugs, substantially as described.

3. In a chain-wrench, the combination, with a head provided at its back or under side with lugs or ears b integral with said head and at its front end with rounded or circular bearing-lugs b^4 and having at the rear of the bearing-lugs holding lugs or portions a' , of a chain having one end secured to the lugs b and its free end adapted to engage the holding portions or lugs, and a bearing surface or shoe provided with a shank b^7 , extended between the lugs b^4 and secured thereto, the said bearing-shoe having its rear side circularly shaped to conform to the shape of the lugs b^4 , substantially as described.

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

ABEL C. WHITTIER.

Witnesses:

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