

(No Model.)

W. H. BROCK.
CHAIN WRENCH.

No. 375,119.

Patented Dec. 20, 1887.

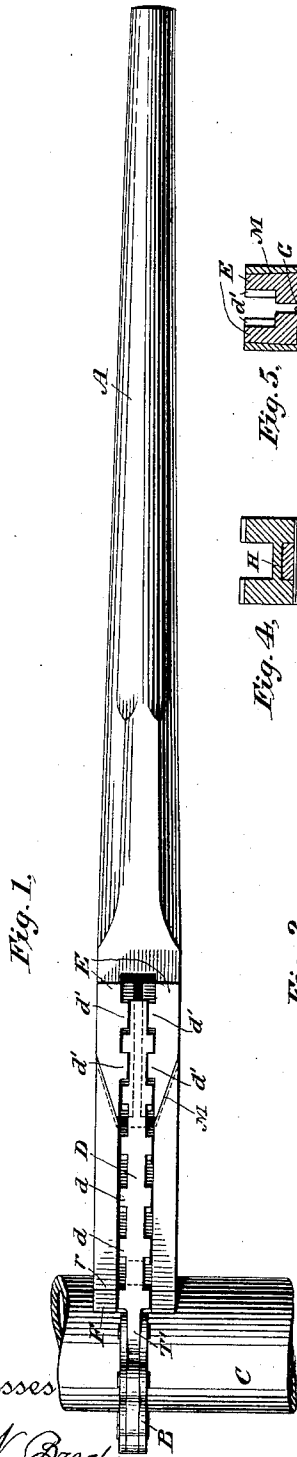


Fig. 1.

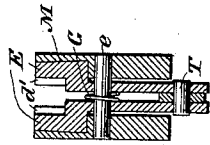


Fig. 5.

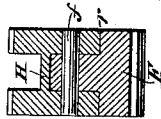


Fig. 4.

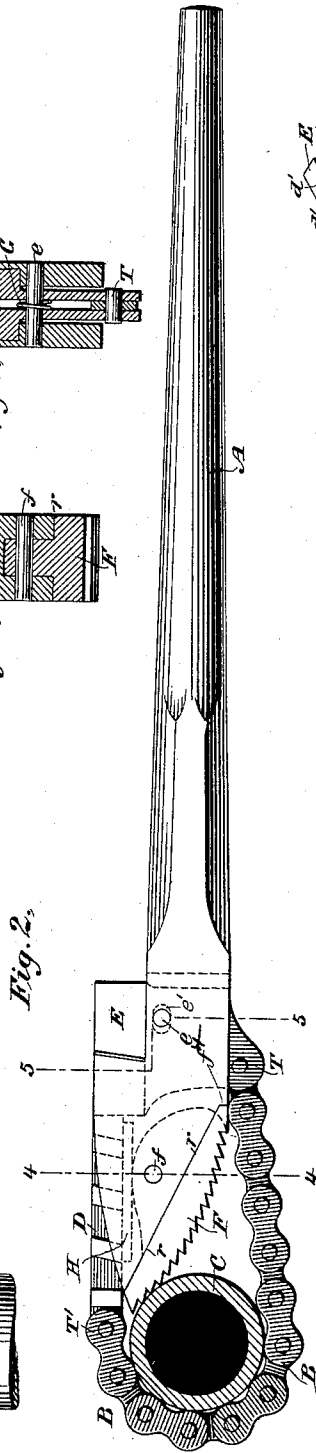


Fig. 2.

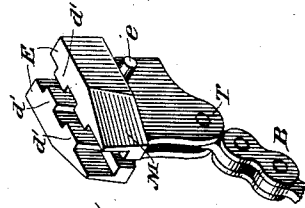


Fig. 7.

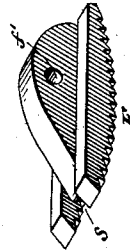


Fig. 6.

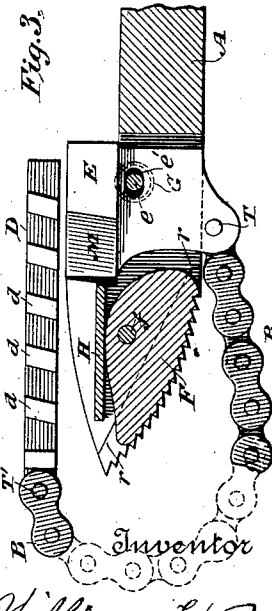


Fig. 3.

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CHAIN WRENCH.

SPECIFICATION forming part of Letters Patent No. 375,119, dated December 20, 1887.

Application filed January 27, 1887. Serial No. 225,708. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BROCK, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Chain Pipe-Wrenches, a description of which, with the method of its construction and use as set forth in the within specification, is in terms so clear, concise, exact, and full as to enable any person properly skilled therein to make, construct, and use the same, reference likewise being had to the drawings annexed hereto.

The nature of this my invention relates not only to improvements in chain pipe-wrenches hitherto devised or in use, but likewise to new functions and powers which are attained by novel and peculiar structure of the various parts and their arrangement and use in combination; and the objects thereby sought to be gained are, first, greater ease in applying the wrench to the pipe; second, the getting of a firmer and more manageable grip upon the pipe; third, the making of a wrench which, as a whole, will be stronger, which can be more easily repaired, and the parts of which can more readily be replaced when worn or broken than is possible with the chain pipe-wrenches now or heretofore devised or in use. These objects I accomplish by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 shows a plan view of the entire chain pipe-wrench as seen in use. Fig. 2 shows a side elevation of the entire chain pipe-wrench as seen in use. Fig. 3 shows a sectional view of the head of the chain pipe-wrench. Fig. 4 shows a sectional view of the head of the chain pipe-wrench as seen from the front, cut off at the dotted line 4 4 in Fig. 2. Fig. 5 shows a sectional view from the rear of the head of the chain pipe-wrench cut off at the dotted line 5 5 in Fig. 2. Fig. 6 shows the shoe F in perspective, and Fig. 7 shows in full the clamp E.

My improved chain pipe-wrench consists of the various parts, as follows: of the handle and head, which are joined in one piece, as shown in Fig. 2, being the handle A down to the inner wall of the slot for the clamp and the head in advance of said wall, and having the form

and shape caused by the line $r r$, having the brace H in the head for strength, pierced forward by the aperture into which the upper part of F, as shown in Figs. 3, 4, and 6, sets, and by the hole for the rivet, pin, or screw f , which holds the shoe F in place, and also provided with the slot E, through which the bar D, chain B, and clamp E, as united together, as shown in Figs. 2 and 3, are passed from above in order to bring the chain and bar below for use, and by the hole for the rivet, pin, or screw e , which holds the clamp E in place, the back of the head being beveled at M' , as in Fig. 1, at an acute angle corresponding to the bevel M of the clamp, as shown in Fig. 7; of the shoe F, as shown in Fig. 6, being a part formed separate from the head. It has a serrated face, which is made convex, as shown, an upward-projecting part which sets into the head of the wrench, the line of separation from the head of the wrench being indicated by the line $r r$, and the shoe held in place by the rivet, pin, or screw f , as shown in Figs. 2 and 3, passing through the hole marked f' in Fig. 6, having also the slotted end S, through which the chain B or bar D passes when in use. The head has a shoulder, f^4 , on its under side, against which the rear end of the shoe F presses, and which receives in large part the back-pressure of such shoe in the use of the invention; of the clamp E, chain B, and bar D, as shown in Figs. 3, 5, and 7, the clamp E being formed of two separate and detachable parts or sections joined together loosely and united with the chain B at the bottom T, having a metal spring or rubber pad, G, at the hole e' , in order to keep them apart ready to receive the bar D, the slotted hole e' permitting free movement of the clamp-sections and having the counter-projections with oblique sides $d' d'$, between which the oblique projections $d d$, which are upon the sides of the bar D, slip and by which such bar is held, the lower part of such clamp-sections being narrow in order to slip through the aperture in the head, but a little above the middle having a shoulder which sets upon the head of the wrench and prevents farther passage, having the beveled front M cut at an acute angle, so that the lower part of such front is larger than the upper part, which front, meeting corresponding bevels in the back

of the head of the wrench, as shown at M' in Fig. 1, causes the clamp to set downward and more firmly into the head of the wrench, and also causes the clamp sections to shut together the more tightly upon the sides of the bar D, according to the pressure applied to the wrench and the inclination of the bevel, the clamp thus being enabled to hold the bar D chiefly by lateral pressure, relieving the projections d d and the counter-projections d' d' of stress, and the clamp closing upon such bar D, so as to enter the head of the wrench as a wedge, the chain B and the bar D being united to the clamp E at T, the clamp E, the chain B, and the bar D thus combining into one piece for use and being held safely but loosely in place by the rivet, pin, or screw e , passed through the hole e' , which is elongated, forming a slot, as shown; and of the bar D, having the projections d d , with oblique sides, which fit in between the counter-projections d' d' of the clamp sections E, such bar being joined at the other end to the chain B at T', and operating to hold the same firmly about the pipe.

The manner of using this chain pipe-wrench and the operation of its various parts are simple and are practically apparent from the foregoing description. The method is shown in full in Fig. 2. The shoe of the wrench is placed in contact with the pipe, so that the pipe is about the middle of the serrated shoe F, the chain B passed under and around the pipe, the bar D fitted into the clamp E, and the chain drawn taut by pulling the wrench slightly backward, so that the pipe comes tightly against the chain B and is gripped between the chain B and the shoe F. Pressure then applied in a forward direction at the end of the handle or lever A will turn the pipe.

It will be understood that the chain B and bar D may be referred to as the gripping-connection, as they connect the upper and lower sides of the head of the wrench and coact with the shoe F in gripping the pipe being turned.

What I claim as my invention, and desire to secure by Letters Patent, is--

1. A pipe-wrench comprising the head and handle, the clamp E, formed in separated sections movable toward and from each other, and the gripping-connection, substantially as set forth.

2. In a pipe-wrench, the combination of the wrench-head provided with a shoulder, f^1 , and having a socket to receive the lug of the shoe, and a brace, H, the shoe abutted at one end against said shoulder f^1 and provided midway between its sides with a lug fitted to the socket of the head, and the gripping-connection, substantially as and for the purposes specified.

3. In a pipe-wrench, the combination of the head and handle, the clamp formed in separated sections and extended through an opening in the wrench-head, the shoe, the chain connected with the lower end of the clamp, and the bar connected at one end with the chain and movable into and out of engagement with the upper ends of the clamp sections, substantially as set forth.

4. The combination, in a wrench, of the head, the clamp formed in separated sections, a spring for forcing such sections apart, the chain, and the bar connected therewith, all arranged and operating substantially as set forth.

5. In a wrench, the combination, with the head having a shoe and provided with inclined bearings, of the chain and bar and the clamp formed in separated sections, the forward ends of which are inclined correspondingly with and movable into engagement with the inclined bearings of the wrench-head, substantially as and for the purposes specified.

6. In a wrench, the combination of the head having bearings M', inclined or beveled longitudinally and transversely, the clamp-sections having their forward ends also beveled longitudinally and transversely, and the chain and the bar, substantially as set forth.

7. The combination of the wrench-head having inclined or beveled bearings M', the clamp formed in separated sections movable at their forward ends into engagement with the bearings M', such sections being also movable toward and from each other, and the gripping-connection, substantially as set forth.

8. The combination, in a wrench, with the head and chain, of the clamp formed in separated sections which are movable toward and from each other, and the bar D, said bar and clamp being provided with interlocking projections d d' , arranged obliquely, substantially as and for the purposes specified.

9. The improved wrench herein described, consisting of the handle and head having an opening for the passage of the clamp and provided with a shoe, the clamp formed in separated sections having projections d' and extended through the opening of the head, a spring for forcing such sections apart, the chain connected with the lower end of such sections, and the bar D, connected with the chain and having projections d , substantially as and for the purposes specified.

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Witnesses:

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