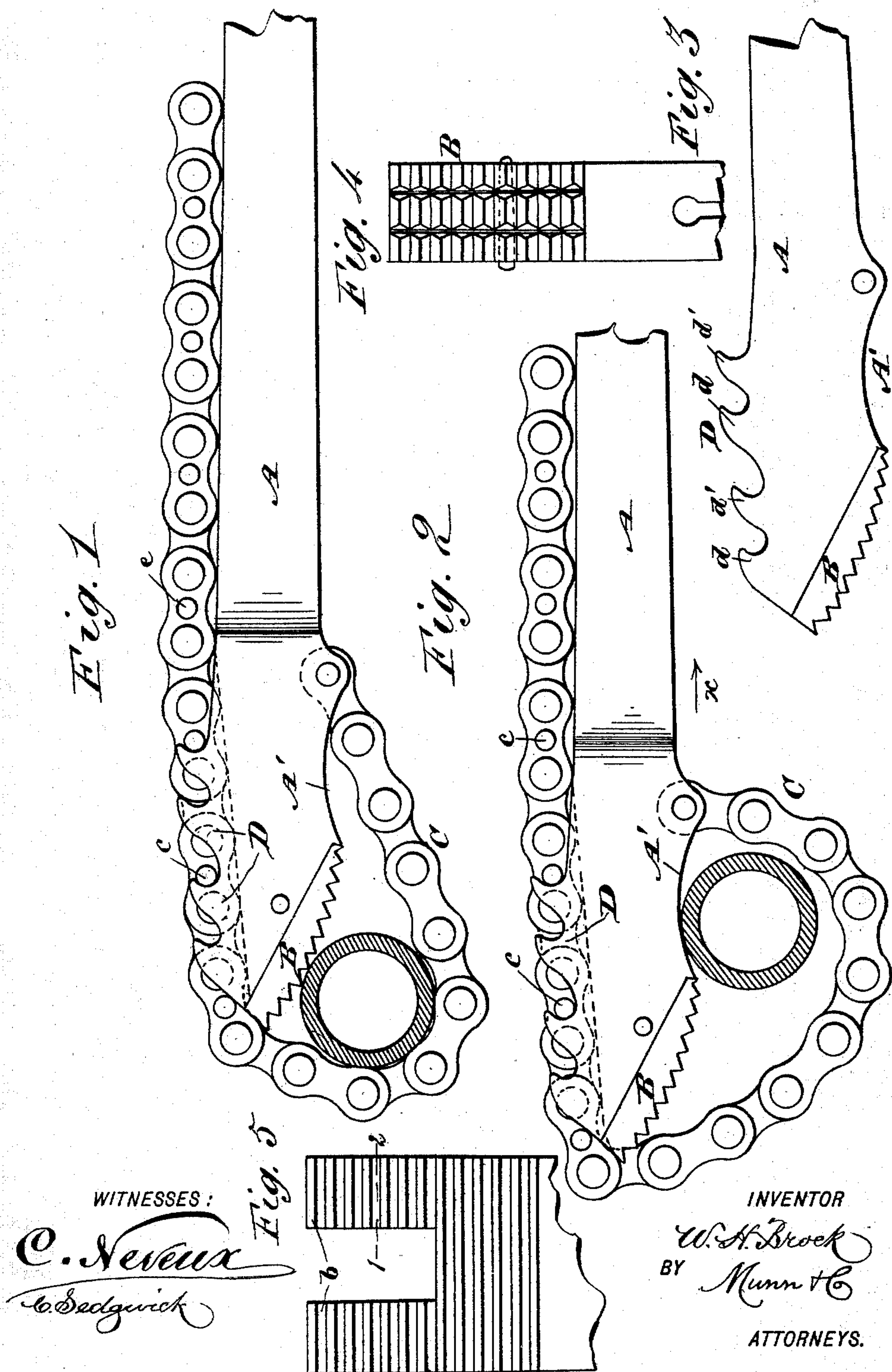


(No Model.)

W. H. BROCK.  
CHAIN WRENCH.

No. 483,419.

Patented Sept. 27, 1892.





# UNITED STATES PATENT OFFICE.

WILLIAM H. BROCK, OF BROOKLYN, NEW YORK.

## CHAIN WRENCH.

SPECIFICATION forming part of Letters Patent No. 483,419, dated September 27, 1892.

Application filed March 19, 1892. Serial No. 425,530. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. BROCK, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Chain Wrench, of which the following is a full, clear, and exact description.

The invention is designed to improve chain wrenches in several particulars, to the end that a strong light wrench may be cheaply produced and possess practical advantages not possessed by others.

The invention will be explained in connection with the description of the construction, and then defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a side view of a chain-wrench embodying my invention, showing the same adjusted on a pipe. Fig. 2 is a side view showing the manner of applying the wrench to a pipe. Fig. 3 is a separate side view of the front end of the wrench, showing the peculiar arrangement of the claws for engaging the chain. Fig. 4 is a detail bottom view given to show the solid form of the shoe; and Fig. 5 is a face view of an ordinary shoe, the view being given for the purpose of comparison.

The handle A of the wrench is provided with a gripping-shoe B, and to the bottom of the wrench, rearward from the serrated shoe B, the gripping-chain C is secured, the free end of the chain having lateral studs c or other projections adapted to engage claws D, formed on the back or upper side of the wrench head. Broadly considered, the elements enumerated, or their equivalents, are common to all chain wrenches.

The gripping-shoe in wrenches as now generally constructed is cut away centrally at the top, as in Fig. 5, to permit the chain to be drawn sufficiently tight around the pipe. It will be readily understood that when the shoe is thus cut away centrally at the top the arms or flanges b thereby formed must be made strong enough to sustain the strain of wrenching. When thus made sufficiently strong, it is evident that the wrench will be quite broad at the head, and a nipple, for in-

stance, shorter than half the thickness of the head, as indicated by the figures 1 2 in Fig. 5, cannot be engaged by the wrench.

My shoe B, I make solid to the extreme top, as in Fig. 4, and can thereby make the wrench narrow while obtaining the necessary strength. I provide for taking up the slack in a novel manner, to wit: By forming a depression or concavity A' in the underside of the wrench-head at the heel of the shoe. With this construction the wrench is so placed on the pipe that the latter is partly received in the concavity, as in Fig. 2, and the chain is drawn around the pipe fairly tight and caused to engage by its projections c with the claws D. When the wrench is now drawn back, as indicated by arrow x, as is customary, the shoe B slips on the pipe until the latter is in the position shown in Fig. 1, or approximately so, and it will be readily understood that the slack will be taken up by the pipe in moving from the concavity to its convexed shoe. The studs c of the chain are shown intermediate the riveted ends of the chain-links; but this is not essential to the present improvements.

The claws D, engaged by the studs c, are preferably four or more in number. It will be observed that the distance between successive claws d d' is not the same. Thus the distance between the first and second claws and between the third and fourth is less than between the second and third. The first and third claws therefore pair and receive two adjacent studs, and likewise the second and fourth. By this arrangement I provide for a closer adjustment of the chain on a pipe, the first and second claws being close together—less than half the distance between the studs c. If, as similarly engaging projections are ordinarily arranged in chain wrenches, the studs c were close together, two on each link, the claws should be similarly spaced and regularly recurring, and the closeness of adjustment be thus dependent on the closeness with which it is practicable to arrange the chain studs on the links. With the studs, one on a link and the first two studs close together, as specified, the chain may be adjusted, without undue slack, on any pipe within its maximum capacity and in a manner to prevent injury to the pipe. Further, I obtain a



narrow wrench, with its attendant advantages, possessing the strength of a broader one and at a somewhat reduced cost.

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

1. As a new article of manufacture, a chain wrench having a convexed shoe and a concave pipe-receiving depression in the rear of and  
10 adjacent to the shoe, and a chain pivotally connected with the wrench-body at the rear end of such depression, the latter extending transversely of the wrench completely from side to side and of a length to accommodate  
15 the pipe and cause the latter to tighten the chain when the pipe is brought from the concaved depression to the forward position on the convexed shoe, substantially as described.

2. A chain wrench comprising a suitable  
20 handle and head, the latter being provided with a shoe, a chain secured to the wrench in the rear of the shoe and provided with lateral projections, and claws on the wrench-head at the upper side for engaging the free end of  
25 the chain, said claws being varied distances apart, substantially as described.

3. A chain wrench having claws for engaging suitable projections on the chain, said claws being spaced varied distances apart, substantially as described. 30

4. A chain wrench having its chain formed with lateral studs and having its head provided with two claws spaced less than half the distance between adjacent chain studs, substantially as described. 35

5. A chain wrench having a concavity or recess in the rear of its shoe and having its chain formed with lateral studs, and the head of the wrench having two claws separated less than half the distance between adjacent chain  
40 studs, substantially as described.

6. A chain wrench having lateral studs on the chain and two claws on the wrench-head spaced apart less than half the distance between the chain studs, and companion claws  
45 for the first-named ones spaced therefrom a distance equal to the distance between two adjacent studs, substantially as described.

WILLIAM H. BROCK.

Witnesses:

J. L. MCAULIFFE,  
C. SEDGWICK.