(No Model.)

R. J. ROBBINS.

PIPE WRENCH.

No. 416,500. Patented Dec. 3, 1889.

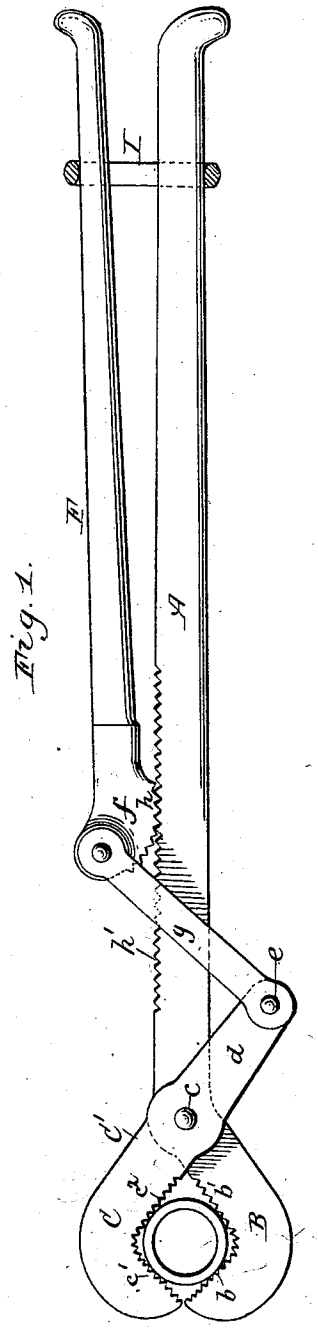

Fig. 1.

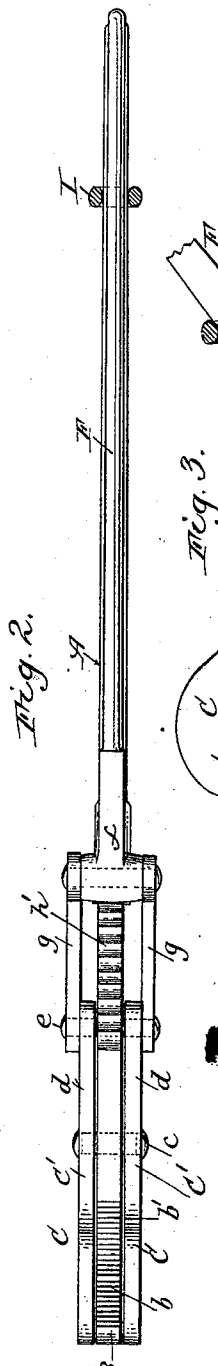

Fig. 2.

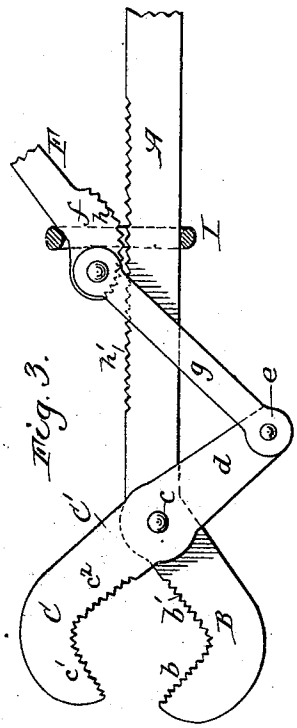

Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

RICHARD J. ROBBINS, OF SUSPENSION BRIDGE, ASSIGNOR OF TWO-THIRDS TO CORNELIUS W. GRAHAM AND EDWARD T. SMITH, BOTH OF BUFFALO, NEW YORK.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 416,500, dated December 3, 1889.

Application filed July 17, 1889. Serial No. 317,766. (No model.)

To all whom it may concern:

Be it known that I, RICHARD J. ROBBINS, a citizen of the United States, residing at Suspension Bridge, in the county of Niagara and State of New York, have invented new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

This invention relates to that class of pipe-wrenches which consist of a main lever provided with a fixed jaw and a movable jaw pivoted to the main lever and provided with an auxiliary lever, whereby the movable jaw is actuated for clamping the pipe or other article to be turned between the biting-faces of the two jaws.

The object of my invention is to construct a simple and powerful wrench of this kind which can be readily adjusted to grasp pipes of different sizes, and which will permit the pipe to be turned in either direction without changing the position of the wrench upon the pipe.

The invention consists of the improvements which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved wrench, showing the jaws closed. Fig. 2 is a plan view thereof. Fig. 3 is a side elevation showing the jaws released.

Like letters of reference refer to like parts in the several figures.

A represents the main lever of the wrench, provided at one end with a fixed jaw B, having serrated or biting faces *b b'*, arranged at right angles, or nearly so, with each other.

C represents the movable jaw pivoted to the lever A by a pin or bolt *c*. The jaw C is provided with two serrated or biting faces *c'* *c²*, arranged at right angles, or nearly so, with each other and facing the biting-faces of the fixed jaw B.

The movable jaw C is preferably composed of two plates C', which are pivoted to opposite sides of the lever A. By constructing the movable jaw in two parts and arranging these parts on opposite sides of the fixed jaw the latter is permitted to enter the space between the two parts of the movable jaw when the jaws are closed together, which enables the jaws to take a firm hold or grip upon pipes of very small size. The plates C' of the movable jaw are provided with arms or extensions *d*, which project rearwardly from the pivot *c* and are connected by a pin or bolt *e*, whereby the plates C' of the movable jaw are caused to move together.

F represents an auxiliary lever, which is supported on the main lever and connected with the movable jaw for actuating the same. This auxiliary lever is provided at its inner end with a cam *f*, which rests upon the upper edge of the lever A. The inner end of the auxiliary lever is connected with the arms *d* of the movable jaw by links *g*, which, being arranged on both sides of the main lever, hold the auxiliary lever in place on the same.

The movable jaw is moved toward and from the fixed jaw by sliding the auxiliary lever backward and forward upon the main lever.

When the wrench is applied to a pipe, the jaws are brought in contact with opposite sides of the pipe by sliding the auxiliary lever backward on the main lever, the auxiliary lever being held with its free end away from the main lever, as indicated in Fig. 3. When the auxiliary lever has been moved backward on the main lever far enough to bring the jaws in contact with the pipe, the longitudinal movement of the auxiliary lever on the main lever is stopped and the auxiliary lever is turned toward the main lever, the cam of the auxiliary lever forming the fulcrum on which it turns. This turning movement of the auxiliary lever causes the jaws to close upon the pipe and to take a firm hold of the same. The movement which is produced in the movable jaw by sliding the auxiliary lever on the main lever is comparatively large, and this movement is utilized for adjusting the jaws to the pipe. The movement which is produced in the movable jaw by turning the auxiliary lever is comparatively small, but correspondingly powerful, so that a firm grip is obtained on the pipe without danger of crushing the pipe by an excessive movement of the movable jaw to-

ward the fixed jaw. The pipe is held firmly between the jaws and can be turned in either direction when the grip is not released; but when the pipe is to be turned in one particular direction the grip of the jaws is released during the backward stroke of the wrench by swinging the auxiliary lever away from the main lever. The cam *f* is provided with serrations *h*, and the portion of the upper edge or face of the lever A upon which the cam *f* rests is provided with similar serrations *h'*, which engage with the serrations on the cam, and whereby the latter is prevented from slipping on the main lever when the auxiliary lever is turned.

I represents a link which surrounds the main and auxiliary levers, and which is free to slide forwardly and backwardly thereon. By moving the link outwardly on the levers until the jaws are firmly closed against the pipe the jaws are locked in this position and the hand of the operator is relieved from the strain of holding the jaws closed.

I claim as my invention—

1. The combination, with the main lever provided with a fixed jaw and a movable jaw pivoted to the main lever, of an auxiliary lever adapted to be moved lengthwise on the main lever and provided at its inner end with a serrated cam which bears against the main lever, and links connecting the cam of the auxiliary lever with the movable jaw, substantially as set forth.

2. The combination, with the main lever, provided with a fixed jaw and a movable jaw pivoted to the main lever and provided with arms or extensions projecting rearwardly from its pivot, of an auxiliary lever provided at its inner end with a cam which bears against the main lever, and links connecting the arms of the movable jaw with the inner end of the auxiliary lever, whereby the movable jaw is actuated for grasping the article to be turned between the jaws by pressing the auxiliary lever against the main lever, substantially as set forth.

3. The combination, with the main lever A, provided with a fixed jaw B, having two biting-faces *b b'*, arranged at an angle to each other, and a movable jaw C, composed of two plates C', pivoted to opposite sides of the lever A and each provided with two biting-faces *c' c²*, arranged at an angle to each other and opposite the faces of the fixed jaw, of arms *d*, formed on the plates C' of the movable jaw and projecting rearwardly from the pivot of the movable jaw, an auxiliary lever F, provided at its inner end with a cam *f*, which rests upon the main lever, and links *g g*, connecting the inner end of the lever F with the arms *d* of the movable jaw, substantially as set forth.

Witness my hand this 9th day of July, 1889.

RICHARD J. ROBBINS.

Witnesses:

JNO. J. BONNER,

F. C. GEYER.